

University of Nottingham
UK | CHINA | MALAYSIA

A multimodal investigation of Discourse Markers in doctoral supervision sessions: Two case studies

Samira Bakeer

A Thesis submitted to the University of Nottingham for the degree of Doctor of Philosophy

July 2020

Abstract

More than 30 years ago, Schiffrin (1987) drew attention to the study of Discourse Markers (DMs). Since then, there has been an extensive body of research studying these devices. Prior work has acknowledged their ubiquity and vital role in spoken, written and Computer-mediated communication. However, studies that investigate DMs in the context of doctoral supervisory discourse are limited and rarely based on multimodal approaches. By embracing both verbal and nonverbal conducts, the current study attempts to fill up this gap by examining the use of DMs in the under-researched context of face-to-face doctoral supervision sessions. Hence, it is a study of multimodal DMs but moves beyond these items to the broader context which could potentially shed new lights on the dynamic nature of social interaction where meaning-making is constructed both verbally and nonverbally.

The research adopts a mixed-method approach which integrates Corpus Linguistics (CL), Conversation Analysis (CA), and relevant aspects of epistemics and relational work within interpersonal pragmatics. This combination allows for detailed and fine-grained analyses that offer a better understanding of the role of DMs in student-supervisor interactions. The data set consists of a mini corpus (around 5.5 hours and 36729 words) of video-recorded meetings collected over three months at a university based in England. The main innovation of the thesis is the proposal of a novel multimodal framework to the study of DMs which aims to widen the focus of CL and CA methods to multimodal analysis and take into account consistent co-occurrence of features occurring in several modes.

Two case studies are conducted in which four participants (two students and two supervisors) from two research fields (Applied Linguistics and Mechanical Engineering) volunteered to be video recorded during their supervision meetings. The data were transcribed and analysed with particular attention to various interactional modes, including verbal, nonverbal and prosodic resources.

The results of the research show that DMs are widely used in the current data, although their distribution and functions are somewhat uneven across the four participants. All participants use DMs as resources for negotiating their common ground and managing rapport by reconciling information provided by their interlocutors with their state of knowledge. It is proposed that these differences are due to differences in the interactional work at play. The findings also underpin several patterns which signify a promising headway in unpacking the relationship between students and supervisors at different stages of candidature.

When it comes to the co-occurrence of embodied resources, the analysis shows that the distribution of co-verbal gesture is not redundant in structure but follows some systematic patterns. Their production serves to maximize opportunities for affiliative actions and minimize opportunities for disaffiliative ones and hence work to social solidarity. At points when there is a risk of breaking down the intersubjectivity, such as during disagreement and criticism sequences, the participants attempt to restore it with both DMs and accompanying gestures. Alternatively, participants are also found to communicate their authoritative stance through specific coverbal gestures which enhance the epistemic meaning of the associated DMs. Further investigation demonstrates that

intonation was tactically used by speakers in order to add additional unspoken information to the markers.

Overall, the thesis makes an essential contribution to our understanding of talk-in-interaction in doctoral supervision contexts. Moreover, the study confirms that in order to recognise what the speaker is trying to communicate with a specific DM, it is necessary to understand the whole segment of the conversation by investigating not only the linguistic properties but also co-verbal gestures and prosodic features.

Acknowledgement

To my main supervisor, Svenja Adolphs, thank you for introducing me to multimodal research and always showing confidence in my abilities. Your continues support and helpful feedback throughout the research process have meant the world to me. On a personal level, I still remember, and will never forget, your smile when I told you that I got pregnant at a critical time of my PhD journey, your heartfelt smile was my big sigh of relief. From the bottom of my heart, thank you for all your support during both of those endeavours. It has been an honour to be your student.

To my second supervisor, Louise Mullany, thank you for your insightful comments, valuable guidance and for always seeing progress rather than problems in my work. You have been the kindest supervisor I could have had.

I would like to extend my heartfelt thanks and appreciation to my internal examiner, Prof. Lucy Jones, and my external examiner, Prof. Anne O'Keeffe, for giving their time and effort to read and examine this thesis. Their great questions, friendly discussions and invaluable recommendations during the *viva voce* make all the sleepless nights and long days in the library so worth it.

Special thanks are due to my participants, the supervisors and the doctoral students, for their willingness to allow me to make video-recordings. Without their help, this thesis would not have been possible.

I extend my thanks, coupled with hugs and tears, to my family, my parents and my siblings for their constant prayers and unconditional love despite the long distance between us. Their encouragement and best wishes over our phone calls are what kept me going when I was about to give up.

With deepest love and affection, I would like to thank my husband for his unfaltering support and for being such a devoted father. Thank you, *Ahmed,* for walking by my side during the happy and hard moments.

Last but not least, I am indebted beyond words to my five children whose innocent actions keep me fighting to the end. *Al-Husain*, who has always been there whenever his siblings needed their protective 'big brother'. *Saja*, who spotted me crying into my pillow, she hugged me tightly and said, "go mummy take a shower, it will be OK". *Ismail*, who once said "I'll help you write this thesis Mummy, I got full mark in my English SATs! *Awaab*, who continues to illuminate my life with his smile and kind heart. Finally, my little angel *Aysam*, the joy of my heart. On bad days, all it takes is cuddling him to feel much better. To the five of you, you are my whole world and so much more.

Table of Contents

Abstract i

Acknowledgement iv

Table of Contents vi

List of figures xiii

List of tables xvi

List of Abbreviations xvii

Chapter 1: Introduction 1

1.1 Background and significance of the study 1

1.1.1 Why the context of doctoral supervision? 4

1.1.2 Rationale for a multimodal approach 6

1.2 Research questions 8

1.3 Thesis overview 9

Chapter 2: Literature review 12

2.1 Introduction 12

2.2 Discourse Markers 13

2.2.1 Terminology and definition 14

2.2.2 Commonly defined features of DMs 20

2.2.3 Major frameworks for analysing DMs 22

2.2.4 The functions of DMs adopted in the study 31

2.3 The influence of context 33

2.3.1 Supervisory sessions as an instance of academic discourse 35

2.3.2 Previous studies on DMs in supervision contexts 38

2.4 DMs from a multimodal perspective: Identifying the research gap 40

2.4.1 Multimodality: Definition and classification 41

2.4.2 Gesture types 44

2.4.3 Speech-gesture interface 48

2.4.4 Speech-gesture synchrony 52

2.4.5 DMs from a multimodal perspective: Relevant Studies 53

2.4.6 Challenges in multimodal interaction research 55

2.5 Summary 56

Chapter 3: Methodology and analytical framework 58

3.1 Introduction 58

3.2 Methods for data analysis 59

3.2.1 Corpus linguistics (CL) 59

3.2.2 Conversation Analysis (CA) 63

3.2.3 Case study 73

3.3 The data 74

3.3.1 Context and research participants 74

3.3.2 Data collection 76

3.3.3 Data processing 78

3.4 Developing a multimodal analytical framework 83

3.4.1 Transcriptions 83

3.4.2 Annotation and tagging 89

3.4.3 Reliability and validity 103

3.5 Summary 106

Chapter 4: Corpus Analysis 107

4.1 Introduction 107

4.2 Stage 1: DMs at the textual level 108

4.2.1 Overall frequency and distribution 108

4.2.2 Functional profile 115

4.2.3 The positioning in turns 117

4.2.4 Combinations of DMs 120

4.3 Stage 2: Prosodic features of DMs 124

4.3.1 Distribution of tone patterns 125

4.3.2 Position of DMs and tone choice 128

4.3.3 Prosodic properties of DMs and their pragmatic functions 131

4.4 Stage 3: DMs and the co-occurrences of embodied resources 145

4.4.1 Frequency analysis 146

4.4.2 Identifying gestures' patterns and functions 147

4.5 Concluding remarks 155

Chapter 5: Supervisory discourse in an English studies domain: Analysis of case study 1 157

5.1 Introduction 157

5.2 DMs in Student 1's speech 158

5.2.1 You know 158

5.2.2 Gaze orientations and the marker "I don't know" 167

5.2.3 Or something like that: The brushing aside gesture 176

5.3 DMs in Supervisor 1's speech 178

5.3.1 So 178

5.3.2 Well 183

5.4 The interactional architecture: contextualising DM use 193

5.4.1 Handling feedback practice through persuasion 194

5.4.2 Instructional talk and the work of advising 197

5.4.3 Discursive talk and the negotiation of epistemic displays 203

5.5 Concluding remarks 209

Chapter 6: Supervisory discourse in an Engineering studies domain: Analysis of case study 2 212

6.1 Introduction 212

6.2 DMs in Student 2's speech 213

6.2.1 Enhancing clarity through the use of *I mean* 214

6.2.2 I think and the expressions of two degrees of epistemic stance 225

6.2.3 The palm-up open hand gesture with *so* and *honestly* 232

6.3 DMs in Supervisor 2's speech 237

6.3.1 But 237

6.3.2 The role of duration in disambiguating the functions of *well* 249

6.4 DMs in different types of speech-exchange systems 252

6.4.1 Manifestations of power in organisational talk 252

6.4.2 Instructional talk and the bodily expression of being precise 258

6.4.3 Discursive talk: Creating a sense of collectively 262

6.4.4 Argumentative talk and the management of (dis)alignment 267

6.5 Concluding remarks 272

Chapter 7: General discussions and concluding remarks 275

7.1 Summary of main findings 275

8.1.1. RQ1: What are the range and variety of DMs used in the current data? 276

8.1.2. RQ2: how do the contextual factors influence the use of DMs 280

7.1.3 RQ3: What understandings can a multimodal perspective on DMs offer? 291

7.2 DMs and the dynamics of doctoral supervision: Two possible factors 300

7.2.1 The influence of stage of candidature 301

7.2.2 Disciplinary nature 303

7.3 Pedagogical implications 306

7.4 Limitations and directions for further research 307

References 310

Appendix 1: transcription conventions 364

Appendix 2: Participants' information sheet 365

Appendix 3: Informed Consent Form 367

Appendix 4: The annotation grid 369

Data bank 372

Transcript for Session one (ST1-SP1) 372

Transcript for Session two (ST1-SP 1) 417

Transcript for Session three (ST2-SP 2) 457

Transcript for Session Four (ST2-SP 2) 493

List of figures

Figure 2.1: Different types of pragmatic markers (Fraser, 1990) 45

Figure 2. 2: Classification of DMs in adaptive management ……30

Figure 2. 3: A core functional paradigm of discourse markers in pedagogic discourse..32

Figure 2. 4: Kendon's continuum (McNeill 2000, p.2)……..45

Figure 2. 5: hand gestures accompanying the verb climb up (McNeill, 2005, p. 109)…….51

Figure 3. 1: concordance line for you know …… 60

Figure 3. 2: An example of multimodal transcription……84

Figure 3. 3: synchronising of two video files in Elan……86

Figure 3. 4: the decision tree for the analysis of turn-taking styles (Beattie (1982) ……89

Figure 3. 5: representation of Brazil's (1985) Discourse Intonation Model ……101

Figure 4. 1: overall distribution of DMs according to turn position ….. …… 117

Figure 4. 2: distribution of DMs according to turn position and function……118

Figure 4. 3: Screenshot of a Praat window showing rising pitch on "that".....149

Figure 4. 4: Screenshot of a Praat window showing level pitch on I mean 139

Figure 4. 5: The throwing- away gesture 148

Figure 4. 6: the side-palms gesture.....149

Figure 4. 7: the ring gesture.....150

Figure 4. 8: the palm-up open hand gesture 153

Figure 4. 9: Gaze movements and turn management 152

Figure 4. 10: Averted eye occurs with I mean 153

Figure 4.11: everted gaze (SP2) 153

Figure 5. 1: waveform of 'you know' with a rising tone 162

Figure 5. 2: coverbal gestures accompanying "I don't know" (example 1).....171

Figure 5. 3: coverbal gestures accompanying I don't know (example 2) 172

Figure 5. 4: coverbal behaviour with I don't know (1).....149

Figure 5. 5: The throwing- away gesture 177

Figure 5. 6: Gaze aversion with 'well' (example 1) 186

Figure 5. 7: SP1's gaze aversion with well (example 2) 187

Figure 5. 8: gaze aversion with well (example 3).....189

Figure 5. 9: SP1's gaze aversion with well (example 4) 153

Figure 5. 10: leaning-forward gesture 196

Figure 6. 1: Example of self-repair and its constituent parts 218

Figure 6. 2: two iconic gestures with the word (flange).. 223

Figure 6. 3: iconic number gestures.....225

Figure 6. 4: the chopping gesture with I think (example 1) 228

Figure 6. 5: mouth and shoulder shrug 232

Figure 6. 6: UPOH gesture with so.....234

Figure 6. 7: the PUOH gesture with honestly.....236

Figure 6. 8: palm down gesture with but (example 1) 242

Figure 6. 9: palm down gesture with but (example 2).....244

Figure 6. 10: the OHP-VP gesture (example 1) 247

Figure 6. 11: the OHP-VP gesture (example 2) 149

Figure 6. 12: duration of well (example 1).....153

Figure 6. 13: duration of well (example 2) 251

Figure 6. 14: SP2's head tilting in a downward direction 254

Figure 6. 15: SP2' chopping gesture with I think 257

Figure 6. 16: SP2's precision grip gesture with so (example 1) 260

Figure 6.17: SP2’ precision grip gesture with so (example 2).....261

Figure 6.18: hand gestures with I think 266

Figure 6.19: SP2’ leaning forward gesture.....271

List of tables

Table 2. 1: Terms used to refer to DMs.....15

Table 3. 1: summary of the supervision sessions.....75

Table 3. 2: DMs initially selected for frequency analysis (Brinton, 1996).....77

Table 3. 3: the final list of DMs to be examined.....79

Table 3. 4: multimodal transcription conventions 89

Table 3. 5: configuration of recurrent hand gesture 92

Table 3. 6: Head gesture Portfolio.....94

Table 3. 7: inter-coder agreement for different tiers (kappa values) 103

Table 4. 1: Top 13 DMs used in the whole data (normalized per 10,000 words)..116

Table 4. 2: Five most frequent DMs per speaker 107

Table 4. 3: functional frequency of DMs across speakers 113

Table 4. 4: the most frequent DMs combinations.....119

Table 4. 5: Distribution of tone patterns of DMs.....123

Table 4. 6: Distribution of types of coverbal gestures across participants.. 145

List of Abbreviations

(All abbreviations are explained within the context**)**

CA- Conversation Analysis

CL- Corpus Linguistics

DMs- Discourse markers

IDK- I don't know

L1- First language

L2- second language

SP1- Supervisor 1

SP2- supervisor 2

ST1- Student 1

ST2- student 2

TCU-Turn constructional unit

Chapter 1: Introduction

The first chapter aims to introduce the research topic by offering a concise summary of its scope and purpose. It additionally presents the research questions and context of the study, together with the methodology and the contribution of the research undertaken. The last section outlines the thesis with a brief overview of the contents of individual chapters.

1.1 Background and significance of the study

Language is not purely a tool to communicate; rather, it is a complex system that transfers "ideas, feelings, emotions, beliefs and cultures to others" (Başol & Kartal, 2019, p. 276). Many devices are utilised to make this transmission of feelings, experiences and ideas more coherent and effective. One of these standard features that are shared by almost all languages is the use of Discourse Markers (henceforth DMs) which refer to expressions such as *but, you know, well, I mean* and *so* that do not typically change the propositional meaning of an utterance (O'Keeffe, Clancy, & Adolphs, 2011, p. 155). Following the ground-breaking study of Schiffrin (1987), a growing body of research has been dedicated to exploring many aspects of these items including their categorisation, grammatical classes, canonical properties, and pragmatic functions (e.g. Aijmer, 2002; 2013; Blakemore, 2002; Brinton, 1996; Crible, 2018; Fischer, 2006; Fraser, 1999; Jucker & Ziv, 1998; Lenk, 1998; Müller, 2005; Schourup, 1999; to name just a few).

Despite inconsistency in terminology and classification (Fischer, 2014; Furkó, 2005), there is a broad agreement regarding the essential roles DMs play in written and spoken

discourse and their profound contribution to the cohesion and clarification of the communicative process (Crible, 2015; Cuenca, 2008; Kim, 2013; Lansari, 2019; Ranger, 2018). Indeed, DMs are crucial elements that provide what Gumperz (1982) calls *contextualization cues* as "they signal verbally or non-verbally the currently enacted discourse frame, including how utterances relate to each other" (Vickers & Goble, 2011, p. 538).

In general, conducting this study contributes to the literature on DMs in three main aspects. The first contribution is related to the methodological approach adopted. DMs have been examined from different methodological and theoretical angles including Discourse Analysis (Brinton, 2010; Othman, 2010; Schiffrin, 1987), Conversation Analysis (House, 2013; Schubert, 2019), Corpus Linguistics (Aijmer, 2002; Grant, 2010; Haselow, 2011; Liao, 2009) and Critical Discourse Analysis (Furkó, 2017). Nevertheless, this study adopts a combined Corpus Linguistics (CL) and Conversation Analysis (CA) methodology (O'Keeffe & Walsh, 2012) within the frame of multimodality (Hazel & Mortensen, 2014; Jewitt, 2008; Mondada, 2018). Due to the lack of multimodal studies on DMs, using this mixed-method is believed to help "provide enhanced of spoken interaction" (Walsh, Morton & O'Keeffe, 2011) and to contribute to a broader understanding of doctoral supervision sessions by examining how supervisors and students co-construct their interaction multimodally through the use of DMs.

Secondly, researchers have often examined DMs use by different groups of speakers including children vs adults (Macaulay, 2005; Laserna et al., 2014), teenagers vs adults (Martinez, 2011), men vs women (Escalera, 2009; Macaulay, 2002; Pasaribu, 2017;

Seyyedrezaie & Vahedi, 2017; Yeganeh, 2015; Yeganeh & Ghoreyshi, 2015). These studies examine how the use of DMs is conditioned by social factors, such as gender and age. Other studies that focus on the influence of the discourse setting on DMs were based mainly on quantitative analysis. For example, in a study conducted by Overstreet & Yule (1997, p. 253), they found that certain DMs are more frequent in an informal setting as compared to formal contexts (see also, Fox Tree, 2010; Fuller, 2003; Lin, 2012). Alternatively, most studies in the field of Second Language Acquisition (SLA) have focused on the overuse vs underuse aspect of DMs (Buysse, 2012; Fung & Carter, 2007; Grant, 2010; Hellermann & Vergun, 2007; House, 2013; Möllering, 2004; Müller, 2005; Pellet, 2005; Terraschke, 2010). However, the question of how to relate patterns of DMs use to the situational context has so far received little attention (Pichler & Hesson, 2016; Verdonik, Žgank, & Peterlin, 2009). Given that DMs are predominantly context-sensitive items (Aijmer, 2002; Lam, 2009), this study is devoted to examining the use of DMs with specific attention to the contextual factors which are considered as "background knowledge, forming an analytic resource for understanding the talk" (de Kook, 2008, p. 900).

Still, the debate over integrating elements of the social context in the analysis of talk continues to be a controversial issue (Van Dijk, 2007, p. 284). Most studies adopting a CA approach consider talk-in-interaction itself as the sole source of information and refer to the contextual factors only when they are proved procedurally relevant to the talk (Hutchby & Wooffitt, 2008, p. 4; Schegloff, 2003). Other researchers like De kook (2008) have concentrated on some aspects of context, such as the setting of the communicative events and the speakers' cultural backgrounds. She argues that merging CA methods with

a much more ethnographic perspective is a requirement as it has the potentiality of providing a holistic view for recognising different patterns of interactions (Arminen, 2000; Cogo, 2012).

Thirdly, previous studies on DMs have rested mainly on either individual items (e.g. Adolph & Carter, 2003; Bolden, 2009; Cuenca, 2008; De Fina, 1997; O'Connell & Kowal, 2005; Kärkkäinen, 2003; Paradis, 2003; Stivers, 2005), or several DMs that belong to one type of grammatical or pragmatic category (Adolphs, Atkins, & Harvey, 2007; Conrad & Biber, 1999; Kranich, 2011; Lewin, 2005; Rozumko, 2016; Castro, 2009). Comparatively, few studies have examined a large variety of DMs with Brinton (1996) and Fung and Carter (2007) being among the few exceptions. Despite providing data that are vital and pertinent to this thesis, the concentration on individual markers may not express what dynamically occurs in interaction (Fuller, 2003; Gablasova, Brezina, McEnery, & Boyd, 2015). To offer a detailed description of talk-in-interaction in doctoral supervision sessions, the set of 33 DMs investigated in Brinton's (1996) study, are adopted (refer to Chapter 3, 3.3.2). Widening the examination to various markers has the potential to give more fruitful insights and robust clarification to the spontaneous negotiation of knowledge that takes place in such an under-pressure pedagogy (Grant, 2005).

1.1.1 Why the context of doctoral supervision?

In CA studies, talk is classified into ordinary (informal) and institutional (formal) conversations (Drew & Heritage, 1992; Levinson, 1992). DMs are principally pointed to as being informal; hence, they are mostly explored in ordinary contexts (Aijmer, 2011; Buysse, 2012; Jefferson, 2002; McCarthy, 2003). Still, some also look at different types of

academic discourse such as classroom interaction (Fung & Carter, 2007; Girgin & Brandt, 2020; Ozer & Okan, 2018), small group seminars (Jones, 2011; Rendle-Short, 1999; Walsh & O'Keeffe, 2010), academic lectures (Othman, 2010) and tutorials (Lee, 2007; Waring 2009). One of the settings that has received less attention is doctoral supervision sessions which leave only partial knowledge regarding the potential roles DMs play in shaping the supervisory discourse.

Face-to-face academic meetings are a vital component of the PhD supervision journey (Tian & Singhasiri, 2016). Effective communication during these critical speech events are generally seen as the central factor in the successful completion of a PhD project (Björkman, 2015; Lee, 2008; McAlpine & Norton, 2006). Poor communication, on the other hand, may lead to "increased dropout rates, delayed submission and an overall poor doctoral education experience" (Kandiko & Kinchin, 2013, p. 46). With the increasing number of doctoral students in the UK and international higher education institutions (Malcolm, 2012; Amundsen & McAlpine, 2009), it becomes more important to investigate the context of research supervision as it constitutes the cornerstone of students' successful adjustment to the new social and academic environment (Heath, 2002; Vehviläinen, 2009a; 2009b). Therefore, "taking a closer look at the nature of doctoral supervision and examining doctoral supervision interactions seems necessary" (Björkman, 2015, p. 208).

Owing to their privacy and prospectively oriented nature, previous research on supervisory discourse has been based heavily on interview data or questionnaire surveys (Abiddin & West, 2007; Halse & Malfroy, 2010), with a specific focus on either the

supervisors' perceptions (Lee, 2008) or the student's attitudes and feelings (Armstrong et al., 2004; Boehe, 2016; Franke & Arvidsson, 2011). What seems to be remarkably limited is a close on-site analysis of what happens when supervisors and students interact within the walls of the offices (Björkman, 2017; Bowker, 2012; Nguyen, 2016; Tian & Singhasiri, 2016). Additionally, by concentrating separately on either the students' or the supervisors' accounts, earlier research fails to reflect the complex and bi-directional nature of the supervisory interaction (Chiang, 2009). This particular gap in the literature paves the way for the current study to investigate how DMs may lead to knowledge negotiations and their role in accomplishing various communicative acts which are of substantial importance in the supervisory relationship.

1.1.2 Rationale for a multimodal approach

Despite the wealth of research on DMs, the majority of the work undertaken to date has the blind spot of privileging the conventional textual or linguistic modes over the visual or multimodal channels (Doak, 2018; Hata, 2016; Knight, 2011). Even the edited book by Fischer (2006), which presents the spectrum of approaches to DMs (referred to in the book as discourse particles) and comprises studies by most of the leading figures in the field, does not tackle accompanying nonverbal cues head-on. However, speech is not the only component in human communication; instead, it is inherently multimodal (Adolphs & Carter, 2013; Knight & Adolphs, 2008).

The multimodal approach is one of the emerging paradigms shifts that are taking place in relation to language studies as a result of the rapid development of information technology and science (Kress, 2000; 2003; Kress & Van Leeuwen, 2001; 2006, O'Toole,

1994; Van Leeuwen, 2005; Van Leeuwen & Jewitt, 2001). The primary rationale that supports multimodality is that languages, whether spoken or written, are constructed across multiple modes, and that the verbal component is only one of these various modes through which people communicate (Levine & Scollon, 2004; Serafini, 2011). Speech and gesture, therefore, are two sides of the same integrated system (McNeill, 1992; Morris, 1994; Kendon, 2004; Wilcox, 2004). In order for DMs to be comprehensively interpreted, it is essential to articulate clearly their accompanying embodied features such as head nodding or hand movement.

Despite its increasing popularity in language studies, the use of multimodal data is still in its relative infancy (Gullberg & McCafferty, 2008; Knight, 2011; Pérez-González, 2019). Arguably, this is partly due to the many technical and resource challenges concerning the collection and analysis of data (refer to Chapter 2, 2.4.6). Compiling multimodal data is typically time-consuming; therefore, speech and gesture corpora tend to be of a smaller size than monomodal corpora. Abuczki and Ghazaleh (2013) state that multimodal corpora still lack existing annotation standards, especially for coding nonverbal behaviour. Given that multimodal transcription frameworks are relatively new compared to more established and conventionalised transcription styles such as CA, another novelty of this thesis is its endeavour to develop a coding scheme which is flexible and diverse. As chapter 3 will show, the coding scheme developed consists of different layers that include the position of DMs, types of turn-taking, type and form of non-verbal cues, pitch, volume and intonation. In so doing, it is intended to serve as a basis for further studies on multimodal conversation analysis.

Bringing these strands together, the originality of the thesis lies in three central themes. Firstly, it aims to develop a more holistic understanding of the role of DMs and the functions that they fulfil in the specific context of doctoral supervision sessions. Secondly, taking the point that supervision meetings are occasions of institutional interactions where the coordination of knowledge is the central generator of the interaction (Heritage, 2012), this study expands the strand of research on knowledge management that is located primarily within CA to focus on epistemic positions and the negotiation of knowledge (Stivers, Mondada, & Steensig, 2011). The third aim is to identify the gestural characteristics and nonverbal cues that accompany the use of DMs. As stated above, the capability to employ and understand nonverbal cues is of specific pre-eminence for mutual understanding in any academic contexts.

1.2 Research questions

As the main focus of this thesis is to understand the use of DMs in doctoral supervision sessions, the first research question to be asked is *What are the range and variety of DMs used in the current data?* To answer this question, we need first to identify the most frequent DMs which is achieved by applying CL techniques.

Besides, a variety of research on DMs has explored their essential role in organising and structuring discourse by providing different functions related to signalling turn-taking or floor-holding. However, no existing literature can be found to thoroughly examine the influence of the discourse context on DMs use (Verdonik, 2015). Since doctoral supervision sessions focus on the negotiation of knowledge and experiences, epistemics provides a useful lens with which to view the ongoing interaction through various speech sequences.

This aspect leads to the second research question, *how do the contextual factors and the state of knowledge influence students and supervisors' use of DMs*?

Given that "co-speech gestures provide a channel for speakers to express additional information related to their communication intent" (Wu & Coulson, 2007, p. 234), it is vital to examine how the participants change their prosodic and gestural orientation during their communicative engagement, as this might be an indicator of their change of attention and engagement with each other. Thus, the third research question that guides the thesis is *What understandings can a multimodal perspective on DMs offer?* This question is further divided into two sub-questions: 1) what are the prosodic and gestural behaviours of DMs? 2) Is there any clear correlation between the functions of DMs and specific non-verbal and prosodic cues?

In an attempt to answer these questions, the data are analysed quantitatively and qualitatively in order to provide an in-depth explanation of the context under scrutiny. However, it should be made clear that the thesis does not make any generalisable claims as the data are relatively small. Nevertheless, the proposed framework might provide a useful starting point which can be utilised in subsequent studies, hence opening new research directions for further advances in the field.

1.3 Thesis overview

This chapter introduces the background of the current study, including its objectives, significance and research questions. Particular emphasis has been placed on

the significance of multimodality and the contextual setting. The thesis is further divided into six more chapters.

Chapter 2 reviews and summarises the major existing literature relevant to the current study. It is divided into three main parts. The first part introduces a general discussion of DMs by offering an overall presentation of the term and its significant characteristics. It also discusses the main frameworks employed and their general functions as identified in previous studies. Such an overview has the potentiality of opening up the way to identify the gap into which this study fits. The second part of the chapter restricts the scope to the issue of DMs in an institutional setting. It first gives an overview of the supervisory session as an instance of academic discourse which provide a basis for the context of the present study. It then describes the nature of the relationship between students and supervisors, followed by a review of previous studies that explore DMs in institutional settings. In the third part, the emphasis is concerned with research on multimodality and the role of nonverbal cues in human interaction.

Chapter 3 describes the methodological framework adopted to analyse the data. In particular, it explains how the data are collected and prepared for analysis, the ethical and confidentiality issues, the difficulties encountered, and how they were resolved. It also presents the coding scheme developed to transcribe and encode the data and the criteria adopted to present the results. Examples from the data are provided and accompanied by a discussion of how they are interpreted in more depth.

Chapters Four, Five, and Six present the findings from data analysis based on macro- and micro-levels of analysis. The first set of results (chapter 4) are related to the CL

analyses of DMs which include frequencies of markers, how they function in the data and whether there are any differences in their use among the participants. These findings are then used as a primary basis to investigate the two case studies in Chapters 5 and 6, which both follow a similar format, with slight variation depending on the information obtained from the data. The analysis integrates the textual examination of DMs, their accompanying gestures, and prosodic features.

Finally, chapter 7 concludes by reviewing the main results and highlighting how DMs enhance the intersubjectivity between participants. Further, it addresses the limitations of the study. Drawing on the findings, several avenues to be investigated in future research are identified as well as pedagogical implications.

Chapter 2: Literature review

2.1 Introduction

After introducing the scope and significance of the study, this chapter summarises and reviews the relevant literature that generates a firm theoretical foundation for the subsequent analyses. Three related themes are addressed in some detail: The first point of departure is DMs as being the specific unit of analysis. The section starts with an account of the terminology and definition of DMs. The next section addresses the wide-ranging and elusive classification of DMs, following with a general examination of some of the functions DMs primarily serve. Ultimately, the section attempts to bring some clarity into the various approaches and frameworks that have been applied to the study of DMs, with particular reference to the model applied in the current study. However, this chapter will not provide detailed reviews of each of the DMs included in the study. Instead, they will be aptly discussed in the analytical chapters.

The second part of the chapter narrows the focus by examining the research context. It starts by offering a consideration about the main distinctive features of institutional interactions. It then takes a closer look at student-supervisor interactions in doctoral supervision sessions. The third and final theme is devoted to the investigation of DMs through a multimodal perspective which is one of the innovative aspects of this thesis. Fundamental research regarding speech-gesture synchrony and the way multimodality has been adopted to recent studies on DMs are initially reviewed. It also provides an overview of the challenges facing multimodal interaction research.

2.2 Discourse Markers

Since the 1980s, the study of DMs has received extensive scholarly attention across various disciplines and in many languages besides English including, among others, Arabic (Al-Khalil, 2005; AlKohlani, 2010; Kurdi, 2008; Sarig, 1995), Indonesian (Wouk, 2001), Italian (Bazzanella, 1990), Spanish (González, 2004; Romano & Cuenca, 2013, Romero-Trillo, 2007), Lithuanian (Ruskan & Kalbotyra, 2015), Danish (Emmertsen & Heinemann, 2010), Hebrew (Ariel, 1998; Maschler, 2009), Hungarian (Vaskó, 2000), Kurdish (Berot, 2018), Chinese (Huang, 2011; Liao, 2009; Tsai & Chu, 2017; Wei, 2011) Finnish (Hakulinen, 2016), Russian (Bolden, 2018), Japanese (McGloin & Konishi, 2010; Tanaka 2013), Swedish (Aijmer & Simon-Vandenbergen, 2003) and Persian (Alami, 2016).

Although all of the work done so far has led to useful insights about DMs which highlights their dominant role in indexing various interpersonal and textual functions, the literature is still far from consistent in terms of the ways DMs have been treated and how these items "have been subject to analysis" (Girgin, 2018, p. 8). Some markers are found to "do more work than others, by virtue of frequent usage, polysemy, and by having multiple discourse functions" (McKee & Wallingford, 2011, p. 213). Taking *so* as an example, which is highly frequent in English discourse (O'Keeffe et al., 2007), Bolden (2006; 2009) concentrates mainly on its use to index other-attentiveness. She further indicates that when prefacing sequence-initiating actions, the marker serves to designate the status of the upcoming action as "emerging from incipiency" (2006, p. 663). Blakemore (1988) and Van Dijk (1979) claim that *so* signals causal and inferential connections between clauses, whereas Johnson (2002) maintains that it can act as a topic developer.

On the other hand, L2 speakers were found "to have acquired and used *so* in functions that are very different" (House, 2013, p. 62) and with a significantly lower frequency in comparison with L1 speaker discourse (Müller, 2005). Lam (2009) examines *so* across different text types and suggests that its functions are best considered based on the constraints imposed by the text type. Therefore, the multifunctionality of markers like *so* "yields a more complex picture" (Buysse, 2012, p. 1765). However, as will be shown in the thesis, the interactive context, as well as the presence (or absence) of particular multimodal cues, play a systematic role in solving this complexity by guiding the interpretation of DMs' core meaning in the interactions as well as disambiguating different functions of the same marker (Ferré, 2011; Abuczki & Furkó, 2015).

2.2.1 Terminology and definition

Despite the plethora of research on the field of DMs, no consensus has been reached as to the very fundamental issues of their terminology and definition. As Maschler & Schiffrin (2015, p. 203) argue "Discourse markers are elements of language that scholars wish to study, even if they do not always agree on what particular elements they are studying or what to call the object of their interest". Dér (2010, p. 5), for example, identifies 42 different English terms used to refer to this group of items which exemplify their terminological diversity. While not intended to be exhaustive, table (2.1) offers the vast array of terms used to refer to DMs in previous research.

Table 2. 1: Terms used to refer to DMs

TERMS	RESEARCHERS
PRAGMATIC CONNECTIVES	Crystal & Davy, 1975; van Dijk, 1979; Lamiroy, 1994
DISCOURSE PARTICLES	Wierzbicka, 1976; Svartvik, 1980; Goldberg, 1980; Schourup, 1985; 1999; Hasen, 1998; Aijmer, 2002; Palacio & Gustilo, 2016; Mattsson, 2009
UTTERANCE PARTICLES	Luke, 1987; 1990
MODAL PARTICLES	Aijmer, 1996; Alm, Behr, & Fischer, 2018.
DISCOURSE SIGNALLING DEVICES	Polanyi & Scha, 1983
PARTICLES	Hoeksema, 2008; Wouden, Foolen, & Van de, 2002
PRAGMATIC EXPRESSIONS	Erman, 1987
PRAGMATIC FORMATIVES	Fraser, 1987
SPEECH MARKER	Olynak et al., 1990
DISCOURSE CONNECTIVES	Blakemore, 1987; 1992; 2002; Unger, 1996; Celle & Huart, 2007
DISCOURSE MARKERS	Brody, 1989; Brinton, 1996; Fox Tree, 2010; Fraser, 1990; 2009; Salmons, 1990; Lenk, 1998; Schiffrin, 1987; 2001; Schourup, 1999; 2001; 2011; Blakemore, 2002; Müller, 2005; Carter & McCarthy, 2006; Fung & Carter, 2007; Schweinberger, 2011; Watts, 1989; Zhao, 2014; Kapranov, 2017; Chen, 2017; Furkó, 2014; Traugott, 1995
DISCOURSE-PRAGMATIC MARKER	Diskin, 2017
DISCOURSE-PRAGMATIC FEATURES	Pichler, 2013
PHATIC CONNECTIVES	Bazanella, 1990
CONNECTIVES	Van Dijk, 1979; Salih, 2014
DISCOURSE OPERATORS	Redeker, 1990; 1991

CUE PHRASES	Knott & Dale, 1994; Horne et al., 2001
PRAGMATIC PARTICLES	Beeching, 2002; Cook, 1999; Foolen, 1996; Fried & Östman, 2005; Meyerhoff, 1994; Gupta, 1992
PRAGMATIC FORCE MODIFIERS	Nikula, 1996
PRGMATIC MARKERS	Aijmer & Simon-Vandenbergen, 2004; Andersen, 2011; Beeching, 2016; Brinton, 1996; 2017; Denke, 2009; Defour, 2007; Foolen, 2011; Fraser, 1996; Han, 2011; Norrick, 2009; Prieto & Roseano, 2016; Tottie, 2014; Schweinberger, 2015; Neary-Sundquist, 2013; 2014; Traugott 2016

Some of the terms in the table above have died out because of being very narrow (e.g. pragmatic connectives and Phatic connectives), or very general (e.g. speech marker) (Mei, 2012, p. 18). The most common items that remain in use with their equivalents in other languages are *discourse markers, pragmatic markers*, *discourse particles* and *pragmatic particles* (Foolen, 2011). The last two, however, seem to be somewhat confusing as the term *particles* is a traditionally syntactic term used to refer to a specific grammatical class while DMs come from various categories ranging from conjunctions and verbs to interjections and adverbials.

Additionally, it is clear from the table that some researchers, such as Fraser, uses different terms to refer to the item under study. He first used *pragmatic formatives* in 1987, then DMs in 1990; and lately switches to *pragmatic marker* in 1996. Schweinberger and Traugott changed the term from *DMs* (1995; 2011) to *pragmatic particles* in (2015; 2016). Similarly, Blakemore (2002) who used other terms in her earlier work adopts the

term DMs later. It seems that “not one single definition of the term discourse marker remained undisputed or unaltered by other researchers for their purposes” (Lenk, 1998, p.37). Other terms that have been mentioned in literature based on the functions of DMs include: “turn-takers, confirmation seekers, intimacy signals, topic-switchers, hesitation markers, boundary markers, fillers, prompters, repair markers, attitude markers, and hedging devices” (Jucker & Ziv, 1998, p. 1-2).

For the sake of convenience, the term *Discourse Markers* is adopted in this study as a cover term since it encompasses relatively two neutral items: *Discourse*, on the one hand, focuses more on the functional aspect with a wide variety of applications (Fung, 2003). It has the inference that the items under analysis function above sentence boundaries and at the discourse level. The second part of the term (*marker)* is the most widely used term that is classified as being more general and neutral (Fraser, 1996; Müller, 2005; Norrick, 2011) which involve both the verbal and nonverbal aspects (Schiffrin, 1987; Foolen, 2011). Hence, the term can combine the multiple modes and various communicative functions investigated in this thesis without being too restrictive to specific functions, which other terms might suggest.

Researchers also disagree on the types of items to be considered as DMs. As underlined by Bolly et al. (2017, p. 71) “there is no recognised closed class of these pragmatic elements”. The fact that DMs are challenging to set within a unified grammatical word group contributes hugely to this disagreement (Lenk, 1998). DMs greatly vary to include conjunctions (*although, because, but*), particles or interjections (*oh, hmm*), adverbs (*now, actually, well*), verbal or lexicalized phrases (*I think, I mean*),

prepositional phrases (*in fact, in other words*) and multi-word lexical phrases (*you know what I mean*, *or something like that*) (Schiffrin, 2001, p. 57). Besides, a unanimous opinion as to which items should be considered as DMs has yet to be settled. For instance, expressions such as the interjection *aha and oh* are considered as DM by Schiffrin (1987) and Schourup (1985) whereas Fraser (1990) does not include them in his list as he claims that DMs should indicate discourse relations rather than being "typically content formatives". Consequently, he excludes the two items *I mean* and *you know* (which Schiffrin includes in her research) claiming that "any reliance on content meaning is ill-founded" (p. 393). This discrepancy in what considers as a DM continues to pose a key challenge in the field.

Giving this inconsistency regarding their terminology and classification, the issue of definition forms another challenging task. Researchers tend to define DMs in different ways based on many aspects which include, but are not limited to; the theoretical framework adopted, the objectives of a given research, the context of the study and the language considered (Casteele & Collewaert, 2013). Some definitions consider DMs as devices which sustain the smoothness of verbal interaction by assisting interlocutors in understanding and managing the social and interpersonal interrelationship of several discourse units. For example, Schiffrin (1987, P. 31) defines DMs as "sequentially dependent elements which bracket units of talk". The phrase *sequentially dependent* means that the type of DMs used is determined by the units which directly precede or follow them. It further means that DMs are suggestive of the varieties of pragmatic and social meaning which the communicators are required to offer or infer. Fraser (1999, p. 937) defines DMs as "a class of lexical expressions drawn primarily from the syntactic

classes of conjunctions, adverbs, and prepositional phrases which signal a sequential relationship between the current underlying message and the previous discourse". Blakemore (Blakemore, 1987, p. 77) who adopts a Relevance-based perspective claims that DMs are generally used ''to guide the interpretation process by specifying specific properties of context and contextual effects. Andersen (2001, p. 39) defines the items as "a class of short, recurrent linguistic items that generally have little lexical import but serve significant pragmatic functions in conversation". Aijmer (2002, p. 2) claims that DMs are "a class of words with unique formal, functional and pragmatic properties", hence they should be studied pragmatically rather than grammatically.

For the present study, the working definition of DMs adopted is that of Fung and Carter (2007, p. 411) who study DMs in pedagogic discourse. Elaborating on the work of Maschler (1994), they define the items as "intra-sentential and supra-sentential linguistic units which fulfil a largely non-propositional and connective function at the level of discourse". This definition is claimed to be comprehensive and transparent (Sutherland, 2016, p. 144, Lee, 2017, p. 41) as it entails that DMs "signal transitions in the evolving process of the conversation, index the relation of an utterance to the preceding context and indicate an interactive relationship between speaker, hearer, and the message" (Fung & Carter, 2007, p. 411). They further provide four ways through which the marking of discourse occurs, which include *referential*, *interpersonal*, *structural* and *cognitive*. As will be discussed in Section (2.2.4), these four functions are broadly applicable to the context of this study.

2.2.2 Commonly defined features of DMs

With much disagreement among researchers on terminology and definition, it is sensible to identify some common characteristics on which many of the items classified as DMs can draw upon. Starting from points of agreement helps to provide general guidelines for the classification of DMs and help forming a sense of their nature (Pons Bordería, 2018). However, it should be made clear that since the main aim of this study is to concentrate on spoken DMs, the defining features discussed below are predominantly applicable to verbal discourse. Therefore, some properties may not be equally practicable in the categorisation of written DMs which are beyond the scope of the current research.

The work of Schourup (1999) is often referred to as forming the basis for DMs characteristics (Lee-Goldman, 2011). For an item to be considered a DM, Schourup (1999, p. 230) lists the following seven requirements: *Connectivity* which refers to the relationship between current and previous discourse; *Optionality* which indicates that DMs are syntactically and semantically optional, but not redundant, *Non-truth-conditionality*; *weak clause association* where DMs occur outside the syntactic structure; *Initiality* as they typically introduce the discourse segments; *Orality* where DMs occur primarily in speech; and *Multi-categoriality* as they vary to include adverbials, conjunctions, interjections and clauses). The first three mentioned characteristics, as Schourup argues, are the most prominent ones while the others are less consistently attained. However, the claim that DMs are syntactically or semantically insignificant is challenged in this thesis (Section 7.3.1.5). The multimodal analysis proves that they are essential to the meaning of

discourse as they often "clear the way for the hearer to get the message intended with maximum efficiency" (Jarrah, 2013, p. 57).

Aijmer and Simon-Vandenbergen (2011, p. 226) provide another classification in which they group DMs into five different categories: 1) *phonological and lexical features*, which characterises DMs as being short (Östman, 1982), phonologically reduced items and form a phonologically independent tone unit (Hansen, 1997, p. 156); 2) *syntactic features*, which implies that DMs are commonly used in sentence-initial positions (Brinton, 1996); 3) *semantic features*, which considers DMs as items with little or no propositional meaning, hence they do not contribute to the truth-conditions of the utterance; (4) *functional features*, which regard DMs as multifunctional devices operating on several levels concurrently (Aijmer, 2002, p. 55); and 5) *sociolinguistic and stylistic features* which classify DMs as belonging mostly to the oral and informal discourse (Brinton, 1996).

Among those, the essential property that this thesis takes is the functional category while the lexical and semantic features will mainly operate to help identify whether an item is considered to be a DMs or not. Though specific markers may be found to occur mostly in initial positions (e.g. *well, yeah but*), the syntactic feature is not recognised as a defining feature in this thesis since the results of the current study (section 4.3.3) are in accord with previous research that has shown that the position of DMs is flexible as they can also occur in turn-medial or turn-final positions as well (Aijmer, 2002; Brinton, 1996). Likewise, the thesis does not touch on the sociolinguistic and stylistic features as "this would require a different approach to the data" (Sandal, 2016, p. 9).

Hansen (1998) proposes three traditional categories to account for the multifunctionality of discourse: *homonymy,* which implies that "the different functions are unrelated except for their form" (Buysse, 2012, p. 1765); *monosemy* which suggests that DMs have a primary meaning that is compatible with all its potential functions (Fraser, 2006; Schourup, 1985); and polysemy which assume that a DM "can have more than one meaning on the semantic level, but that these meanings may be related in a motivated – if not necessarily fully predictable way" (Hansen, 2006, pp. 5-6). The stance taken in this study is that of Aijmar (2002, p. 21) who regards DMs as having different functions which "are related to a prototype or core in a polysemous way". However, in few cases, a "middle solution" (Jucker, 1993, p. 437) is followed in which the different subfunctions of a DM are listed as it is difficult to determine its core or primary meaning. Furthermore, in accord with (Abuczki, 2014, p. 121), the findings of the study presented in the subsequent chapters suggest that "a multimodal approach is indispensable in communication modelling in order to disambiguate the actual meaning of polysemous communicative signals such as DMs". By adopting this perspective, DMs are seen as operating on "type of spectrum" (Fischer, 2014)

2.2.3 Major frameworks for analysing DMs

As briefly outlined in chapter one, several theoretical frameworks have been applied in the study of DMs most of which can be divided into two divergent perspectives: studies that use a top-down approach to look at how DMs serve within a proposed theoretical framework (e.g. Blakemore, 2002; Maschler, 1998); and others that adopt a bottom-up method (e.g. Müller, 2005) which try to explore DMs' usage with as little

influence from already existing models as possible. However, bottom-up approaches that start from the incoming data often have issues in terms of validity, while top-down ones meet criticisms of having presuppositions before analysis (Dostie, 2013; Crible, 2015; Koops & Lohmann, 2015; Lohmann & Koops, 2016). The argument raised in this study is that the two types of processing procedure should be interwoven simultaneously at all levels of analysis.

The following sections provide a detailed description of four influential approaches that are mostly applied to classify and analyse DMs. Despite being somehow different in their theoretical frameworks, they all seem to report roughly the same functions for the target items and draw similar conclusions (Sandal, 2016, p. 11). While other prominent approaches have been applied to the study of DMs such as the Speech Act Theory (Brown & Levinson, 1987), the Rhetorical Structure Theory (Mann & Thompson, 1988) and the Enunciative Approach (Ranger, 2018); this section will not go into detailed discussions about all the existing frameworks due to the limited space of this thesis.

2.2.3.1 Coherence-based approach

The coherence framework regards DMs as linguistic devices that maintain coherence in the text by linking its units. Influenced by Halliday and Hasan's model (1976), the work of Schiffrin (1987) is considered as one of the most elaborated and frequently cited coherence-based studies on DMs which, as mentioned earlier, lays the basis for the thriving research in this field (Bolden, 2009; Pander Maat & Degand, 2001). Through an in-depth analysis of 11 English DMs (*oh, well, but, and, or, so, because, now, then, I mean* and *you know*) as they appeared in a corpus of sociolinguistic interviews with Jewish

Americans, she suggests that DMs provide “contextual coordinates for utterances” and hence, they add coherence to discourse (p. 31).

She proposes five closely-connected, yet separate planes of talk that include: (1) the *exchange structure*, which focuses on the way speakers alternate sequential roles); (2) *action structure*, which is concerned with the sequence of speech acts that occur within the discourse; (3) *ideational structure*, where the cohesive relationships between the ideas are represented, including topic, functional and cohesive relations; (4) *participation framework*, where speakers and hearers are related to each other and their utterances; and (5) *information state* where speakers’ knowledge about ideas are organised and managed as it evolves throughout the discourse (1987, pp. 24-25). Despite not offering much detail on the way different semiotic resources are used with DMs, Schiffrin claims that the model has both verbal and nonverbal constituents which are integrated to form a coherence relationship.

Redeker (1990; 1991) criticises Schiffrin’s model for depending “heavily on the markers themselves in identifying the intended relations” (1991, p. 379). Instead, she proposes a revised and simplified model of discourse coherence which include the three categories of *ideational*, *rhetorical* and *sequential* structures. While the first two structures are roughly equivalent to Schiffrin’s ideational and action structures, the sequential structure is different from the exchange structure in that it can account for sequential transitions in both monologic as well as dialogic discourse (Algouzi, 2015, p. 33). Furthermore, Redeker believes that the other two plains suggested by Schiffrin (i.e. information and participation) do not directly contribute to discourse coherence. Instead,

she proposes that the use of one of these types rather than the other depends mainly on the relationship between the speakers. For example, in conversations between friends, a high rate of pragmatic markers is used, whereas, in conversations between strangers, ideational markers were used more frequently.

The discourse-coherence approach has also been challenged by other scholars such as Aijmer, (2002), Andersen, (2001); Brinton (1996), Müller (2005) and Traugott (1999) who all claim that its planes of talk "are not explained with enough clarity to make them a robust model for the analysis of DMs" (Aijmer, 2002, p. 13). Instead, they restricted the functions of DMs on two macro levels: textual and interpersonal. Another issue regarding the model is that it is not explicitly designed for corpus application and thus "remains qualitative in nature" (Cuenca & Crible, 2019, p. 171). Considering that language is an interactional phenomenon, the model does not give an adequate account of the interpersonal and conversation-managing functions of DMs (Cuenca & Marín, 2009; Lohmann & Koops, 2016). Furthermore, although Schiffrin defines DMs as "bracketing units", she does not provide an explicit definition of what the unit is. Therefore, the model ceases to discriminate between the DMs (Alami, 2015). As Lenk (1998, p. 43) argues "While DMs can function on more than one structural level at once, how a hearer can be certain that his interpretation of that DM's function in that particular instance is correct?".

2.2.3.2 Relevance-based perspective

The Relevance approach (Blakemore, 1987, 1992) is another significant model that has been widely adapted in DMs' studies (Allott, 2013). Working within Sperber and Wilson's (1986) notion of *Relevance,* and Grice's (1989) notion of *Conventional*

Implicature, Blakemore sees DMs as discourse connectives that are used to indicate *procedural* meaning which impose constraints on the implicatures the hearer can draw from the discourse (Taboada, 2006). In her earlier work, she claims that as DMs represent a procedural meaning, they cannot encode a conceptual meaning, in the sense that they have minimal semantics which renders inferential computations to the meaning relations inherited in the context in which DMs occur (Blakemore, 1992, p. 333). The procedural/conceptual distinction was seen as "coinciding with the distinction between truth-conditional and non-truth-conditional meaning" (Wilson, 2011, p. 6). She further offers four basic ways through which DMs can sustain the relevance of an utterance: "they can introduce a contextual implication (e.g. *so*, *therefore*); they can strengthen an assumption expressed, or introduce further evidence for it (e.g. *after all*, *besides, moreover, furthermore*); they can deny, or contradict an assumption (e.g. *however, but*), and they can specify the role of the utterance in the discourse (pp. 137-142).

As with the coherence approach, Blakemore's assumptions are also called into question by many researchers including Hansen (2003), Pons Bordería (2008), Rieber (1997), Takeuchi (1997), and Wilson and Sperber (1993) who all have shown that "conceptual and procedural features can coexist within a single marker" (Pons Bordería, 2008, p. 1411). In the light of critiques, Blakemore (2002) revised her old account and acknowledges that the parallelism between the conceptual vs procedural meaning and truth-conditional vs non-truth-conditional distinctions breaks down in several ways (Wilson, 2011). Thus, DMs can be defined according to the role they play in marking "structural relations between segments, and the key to their analysis lies in the classification of the kinds of relations that exist between text segments" (Blakemore, 2002,

p. 152). Hence, the object of research adopting in this theory is not discourse itself, but the "cognitive processes underlying successful linguistic communication" (Blakemore, 2002, p. 5).

Correspondingly, findings of the current data (see Chapter 7, 7.1.3) suggest that the fundamental distinction between procedural and conceptual meaning might help to explain the co-occurrence of embodied conducts by guiding "the comprehension process in one direction or another'' (Wilson, 2011, p. 20). Still, it needs further investigation from a multimodal perspective.

2.2.3.3 Grammatical-Pragmatic Perspective

Refining the coherence-based model, Fraser (1988, 1990, 1999, 2009) proposed the *Grammatical Pragmatic Model* in which he considers DMs as being merely linguistic items, hence unlocking non-verbal DMs such as pauses or gestures. Although Fraser argues for a coherence-based account of DMs as Schiffrin suggests, he attempts to provide a relatively different view towards their study in a global, rather than local, context by considering both, DMs' role in signalling coherence relations as well as in determining the way the addressee interprets the speaker's intended meaning (Fraser, 1999, p. 936). He defines DMs as "a class of lexical expressions drawn primarily from the syntactic classes of conjunctions, adverbs, and prepositional phrases" (p. 931)

At the heart of this model is the differentiation between *content meaning* which refers to "the literal interpretation of the sentence" and *pragmatic meaning* which refers to "the direct message the speaker conveys in uttering the sentence" (Fraser, 1990, p.

386). He further defines the functions of DMs as conveying a message through segments ('S') and that DMs "impose on S2 a certain range of interpretations is difficult to define given the interpretation(s) of S1 and the meaning of the DM" (Fraser, 1998, p. 942). Fraser believes that DMs are one set of pragmatic markers which include also; 1) basic pragmatic markers; 2) commentary pragmatic markers, and 3) parallel pragmatic markers (figure 2.1)

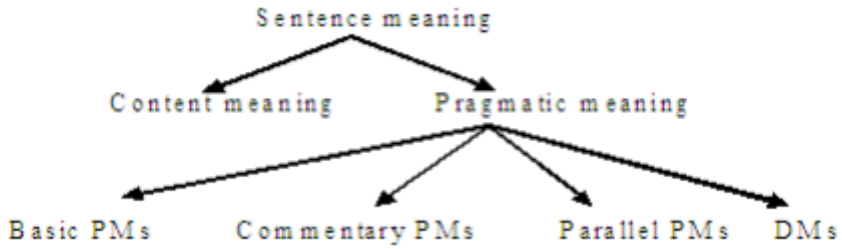


Figure 2.1: Different types of pragmatic markers (Fraser, 1990)

2.2.3.4 Corpus-based Approach

The corpus-based approach to DMs is based on a primarily functional perspective to language, which believes that "naturally occurring discourse is meaningful only in its real-world function and context (Vessey, 2013, p. 3). Both Aijmer (2002, 2004) and Müller (2005) are said to be the first two researchers who emphasise how corpus can enrich the comprehension and interpretation of DMs' role in discourse (Huang, 2019). Based on data from the London-Lund Corpus, Aijmer focuses her analysis on the most common markers in the corpus which include *sort of*, *oh* and *ah*, *now*, *just*, *and that sort of thing* and *actually.* She concludes that DMs are going through the process of *grammaticalisation* (Sandal, 2016) which may help explain their multifunctionality. She also believes that the core meaning of DMs is an "abstract notion" (Aijmer, 2002, pp. 23-37). Furthermore, she claims that DMs are: (1) flexible in their turn-position; (2) can be either prospective or

retrospective and (3) can serve three main functions, namely as phatic connectives within the interpersonal domain (c.f Bazzanella, 1990, p. 630), as framers within the textual domain (cf. Halliday,1985, p. 53); and as qualifiers in the qualifying category which designates that "some qualification is needed because the dialogue does not go well" (Aijmer, 2002, p. 46).

Based on the Giessen-Long Beach Chaplin Corpus (GLBCC), Müller (2005) has conducted a corpus-based study on the DMs (*so*, *well*, *like* and *you know*) as used by two speaker groups (American speakers of English and German language learners). She reaches the same conclusion as Aijmer and proposes that DMs are multifunctional which do not necessarily have a core meaning. Alternatively, she classifies the function of DMs into two primary levels: textual which focuses on "expressions and propositional content expressed in units of various length" (Müller, 2005, p. 30), and interpersonal which focuses on the relationship between speakers and hearers which could "mark a speech act, a response, an opinion, or an evaluation" (p. 31). Furthermore, she signifies underlined differences between the two speaker groups.

Of special interest to this study is the recent work by Aijmer (2013) who calls for the study of DMs from a variational perspective by considering context from a sociolinguistic angle, hence taking into account "the language user and the relationship between meaning and context" (p. 4). Taking a step further, Romero-Trillo (2015; 2018) implements the Dynamic Model of Meaning (Kecskes, 2008; 2013) to the study of DMs, where he views context from socio-cognitive and dynamic viewpoints. Originally, Kecskes' model involves three contextual elements, namely linguistic, private and situational.

Romero-Trillo incorporates a fourth element which he terms “the adoptive management” which creates the cognitive relationship between the other three elements. Figure (2.2) represents the role of DMs in adoptive management, which includes two main functions (operative and involvement), each of which is divided into other subfunctions.

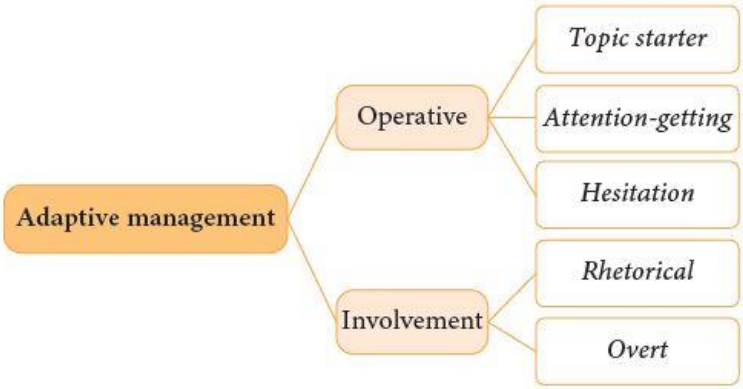


Figure 2. 2: Classification of DMs in adaptive management (Romero-Trillo, 2015, p. 124)

To summarise, different approaches are used in DMs’ studies which attempt to provide explanations to the role of DMs in discourse. All these approaches emphasise that DMs are among the strategies employed to link the stretches of discourse together, mark discourse coherence (Schiffrin, 1987), restrict the scope of the hearer’s interpretation of the discourse (Blakemore, 2002) and signal the relationship between the speaker and hearer as well as the relations among different parts of the discourse. However, as DMs are commonly context-sensitive which are produced without conscious knowledge, it is sometimes difficult to demonstrate the function of any instance of a DM unequivocally without considering the contextual factors (Al-Makoshi, 2014). Besides, giving priority to an adopted model “may result in disregarding DMs that cannot fit said model” (Erman,

1987, p. 114). It is therefore relevant and useful to draw on both prior models as well as other contextual cues when classifying the functions of DMs.

2.2.4 The functions of DMs adopted in the study

In the previous sections it has been made clear that the current study takes multifunctionality as a fundamental characteristic of DMs with no one-to-one correspondence between form and function (e.g. Boas, 2010; Buysse, 2012; Maschler & Schiffrin, 2015; Schiffrin, 1987; 2014). Put it differently; it is believed that a particular DM can have several functions, and the same function can be expressed by several DMs. The bulk of existing research has shown that DMs exhibit a broader range of discourse functions that generally relate but not limited to turn-taking (Fung & Carter, 2007; Othman, 2010; Buysse, 2012; Liu, 2017), repair (Crible & Pascual, 2019; Heeman, 1999), fluency (Crible, 2018), politeness (Arroyo, 2011), intersubjectivity and social solidarity (House, 2013; Wouk, 2001; Wang, Tsai, & Yang, 2010), hedging (Tchizmarova, 2005), and stance taking (Kärkkäinen, 2003; 2007; Maschler & Estlein, 2008).

For this study, the functional framework proposed by Fung and Carter (2007) have been adopted. Using a corpus of classroom discourse and comparing it to spoken British English (CANCODE), they investigate English DMs as used by Hong Kong Chinese speakers of English. In addition to demonstrating considerable differences in the use of DMs between the two speaker groups, they offer a comprehensible multi-categorial framework in which they classify the functions of DMs into four macro categories: *Interpersonal*, *Referential, Structural* and *Cognitive* (figure 2.3).

Interpersonal	Referential	Structural	Cognitive
Marking shared knowledge: *See, you see, you know, listen*	Cause: *Because, cos* Contrast: *But, and, yet, however, never-theless*	Opening and closing of topics: *Now, OK/ okay, right/alright, well, let's start, let's discuss, let me conclude the discussion*	Denoting thinking process: *Well, I think, I see, and*
Indicating atti-tudes: *Well, really, I think, obviously, absolutely, basically, actually, exactly, sort of, kind of, like, to be frank, to be honest, just, oh*	Coordination: *And* Disjunction: *Or*	Sequence: *First, firstly, second, secondly, next, then, finally*	Reformulation/Self-correction: *I mean, that is, in other words, what I mean is, to put it in another way*
Showing responses: *OK/okay, oh, right/ alright, yeah, yes, I see, great, oh great, sure, yeah*	Consequence: *So*	Topic shifts: *So, now, well, and what about, how about*	Elaboration: *Like, I mean*
	Digression: *Anyway*	Summarizing opinions: *So*	Hesitation: *Well, sort of*
	Comparison: *Likewise, similarly*	Continuation of topics: *Yeah, and, cos, so*	Assessment of the listener's knowledge about the utterances: *You know*

Figure 2. 3: A core functional paradigm of discourse markers in pedagogic discourse (Fung & Carter, 2007, p. 418)

The *interpersonal* category includes cases where the DMs signal shared knowledge by showing how the relationship between the participants is established and maintained. DMs in this level are used mainly to reduce social distance and indicate rapport between the speakers. The *referential* category echoes Schiffrin's ideational structure and gives more emphasis to the semantic relations to ideas structures, in that, DMs connect previous and subsequent segments in meaning. The structural domain focuses on how the speaker organises turns in talk-in-interaction, such as indicating connection and conversion between topics. Lastly, the Cognitive level draws on the speaker's thinking process and include DMs such as those indicating reformulations (e.g. *I mean*) or elaboration (e.g. *like*) or hesitation.

This functional classification is believed to be relevant to the current study as supervision sessions are considered a type of pedagogical setting (Kamler & Thomson,

2006) which display some similarities to the classroom interactions in two points: both settings are considered somewhat formal, and that one of the participants (i.e. the supervisor) is assumed to have more knowledge than the student. However, when deciphering all the items in the current study, it was sometimes difficult to define with certainty the essential function of DMs due to overlapping interpretations (Schiffrin, 2001). In most of these cases, "the function of a DM reflects the function of the discourse at the same time as the discourse reflects the function of the DM" (Mattsson, 2009, p. 16).

2.3 The influence of context

Following the move from considering language as a formal system to its use in real-life situations, context has become a significant concept in the study of interactions due to its close relationship with meaning and pragmatics (Adjei, 2013; 2019; Asher, 1994; Wilkinson & Maxim, 2007). Indeed, the term is regularly used in pragmatics definitions. Yule (1996, p. 3), for instance, defines pragmatic as the study of "the contextual meaning" where context means "the physical environment in which a word is used". The definition of context adopted in this study is that of Van Dijk (2007, p. 163) who defines the term as the "subjective definitions of events or situations, but in this case not of the situation we talk about but the situation in which we now participate when we engage in talk or text". This means that "contexts are seen as determining actions, and actions are also seen as determining contexts" (Stone, 2017 p. 51).

The significance of context has been indicated in various research trends as a reflexive sense in which ''the participants build the context of their talk in and through their talk'' (Heritage, 1997, p. 224). Hymes (1974) uses the acronym SPEAKING to refer to

the primary factors which deem relevant to the context. These include: (1) *Setting and Scene* (S), in which *setting* refers to the time and place in which the speech event takes place and *Scene* refers to the abstract psychological environment or the cultural definition of the occasion; (2) *Participants* (P), which include the speakers and listeners who generally fill specific socially specified roles such as gender, status, age or profession of the participants; (3) *Ends* (E), which refers to the conventionally recognized and expected outcomes of exchange as well as to the personal goals that participants seek to accomplish on particular occasions. Put it differently; it is the intent of the participants in the speech event; (4) *Act Sequence* (A) which focuses on the actual form and content of what is said (i.e. the precise words used, how they are used, and the relationship of what is supposed to the exact topic at hand); (5) *Key* (K), which refers to the tone, manner or spirit in which a particular message is conveyed. Accordingly, the key can be marked nonverbally by certain kinds of embodied conducts; (6) *Instrumentalities* (I), which refers to the choice of channel and to the actual forms of speech employed, such as the language or register that is chosen; (7) *Norms of Interaction and Interpretation* (N) which refer to the specific behaviours and properties that attach to speaking and also to how these may be viewed by someone who does not share them (e.g., loudness, silence and gaze); and (8) *Genre* (G) which refers to clearly defined types of utterances. All these factors will be considered when analysing DMs in the current thesis.

Other studies have adopted Accommodation Theory to describe the influence of context in a rather specific way by concentrating the role of the conversational partners on the lexical, phonological, or visual choices (e.g. Hoff, 2010; Oben & Brône, 2015). The process of accommodation is generally referred to with various terms such as *convergence*

(Abel & Babel, 2017; Giles et al., 1991; Pardo, 2006), *entrainment* (Brennan, 1996; Friedberg, Litman, & Paletz, 2012; Reichel, Beňuš, & Mády, 2018), *alignment* (Atkinson, Churchill, Nishino, & Okada, 2007; Pickering & Garrod, 2006), *affiliation* (Oittinen, 2018), and *synchrony* (Edlund, Heldner, & Hirschberg, 2009). Accommodation in interaction has been demonstrated to arise from a variety of sources, from a tendency to focus on a comparison with others in new social environments to a consistent kind of non-conscious behaviour (Poos & Simpson, 2002; Schleef, 2005).

In particular, research has revealed that speakers tend to adapt their lexical terms (Nenkova et al., 2008), their grammatical and syntactic structure (Branigan et al., 2010; Pickering & Ferreira, 2008), their pronunciation (Giles et al., 1991; Babel & Bulatov, 2011; Pardo, 2006), their prosodic features (Gregory et al. 1993, Edlund et al. 2009, Levitan and Hirschberg 2011), their speech rate and speech timing (De Looze et al. 2011), their facial expressions (Hess and Blairy 2001) and their nonverbal behaviour (Richardson et al. 2007, Shockley et al. 2009). Consequently, the analysis of DMs in the current thesis will also be informed by some concepts from the accommodation theory by examining how the participants use DMs and accompanying multimodal cues as sources for converging behaviour (Fang, 2017, see section 7.1.2.1 for further details).

2.3.1 Supervisory sessions as an instance of academic discourse

It is commonly believed that supervision sessions in higher education represent a cornerstone particularly for the successful completion and the production of quality research work (Easterby-Smith, Thorpe, & Lowe, 2002; Zhao, Golde, & McCormick, 2007). In particular, supervision at the doctoral level has been viewed in various ways, such as

cognitive apprenticeship (Hasrati, 2005), coaching (Reidy & Green, 2005), a scaffolding procedure (Deuchar, 2008), a private space (Manathunga, 2007), and socialisation (Delamont, 2001). Doctoral supervision meetings also share the three traits of institutional discourse described by Drew and Heritage (1992) which include specific goals related to the institutional identities of each speaker; constraints on the participants' contributions to the interaction; and certain procedures and frames that are knotted to the institutional objectives (Heritage & Greatbatch, 1991; Lemke, 2001; Fenge, 2012; Golde, & McCormick, 2007; John & Denicolo, 2013; Kobayashi, 2014; Wright, 2003, among others). Goode (2010, p. 40) describes the nature of supervisory meetings as "product emphasis" where the term product refers to ''a thesis of adequate quality, evidence of research competence, an original contribution to the literature and a labour market credential''.

Supervision meetings can take different patterns and models. One of these is the problem-solution pattern (Dudley-Evans, 1994), where students and supervisors typically discuss issues and problems in the research process and try to find solutions for them (Ho, 2011). However, other researchers (e.g. Thompson, 2003) claim that this is a simple structure since a variety of other contextual factors might influence supervisory discourse. Youngman (1994) analysed supervision sessions from a rhetorical perspective identifying a series of moves which do not occur in any particular order and can be recurrent throughout the meetings.

The pattern of structure which seems to be implemented in the supervision sessions under investigation is the one known as ''*You write I read we meet*'' (Reidy & Green, 2005). In this pattern, a written draft of the most recent work is sent to the supervisor for detailed feedback, which becomes the subject of discussion at the

subsequent meeting in addition to setting short-term goals in preparation for the next meeting (Reidy & Green, 2005, p. 57). Such a pattern entails that these regular meetings are fundamental to the successful completion of the thesis.

The supervisors' style is also central in the literature on effective supervision (Abiddin & West, 2007; Deuchar, 2008; Grant, 2003). As indicated by Taylor and Beasley (2005, p. 14) "each pairing of individuals is, by definition, unique, each relationship will be different depending on the supervisor's style of guiding doctoral students, and the characteristics of the student to create best fit'". Gatfield and Alpert (2002) describe four paradigms of supervisory styles: (1) the *laissez-faire* where the supervisors play a minimal role in the research project management and the provision of support, leaving these matters mainly to the students); (2) the *pastoral style* where the supervisors play an extensive role in providing personal support to the students while simultaneously letting them deal with the research project; (3) the *directorial* style which assumes that the supervisors play a vital role in the research project management, but leaving the students to arrange personal support and resources; and (4) the *contractual* style where the supervisors and the students negotiate roles in the research project management and personal support.

Other scholars, (e.g. Mercer, 2010; Hardman, 2004) have argued that doctoral supervision sessions can better be understood using the model of the co-construction of knowledge. This term is defined by Hardman (2004) as the joint undertaking of ideas between students and one (or more) supervisor who is more knowledgeable. This knowledge asymmetry triggered by differences in the participants' role is considered here crucial to the understating of student-supervisor interactions (Lindström & Karlsson, 2016,

132). In order for the construction of knowledge to take place, the supervisors and students should interact by taking turns in asking and answering questions and in seeking and giving advice. This, in turn, highlights the importance of a bidirectional relationship between the student and their supervisors which leads to an effective interaction (Gorsky et al., 2006; Sidnell, 2010).

Drawing on this, DMs in this thesis are analysed on two interconnected levels: at the global level (i.e. institutional), which is "concerned with how these institutional realities are evoked, manipulated and even transformed in interaction" (Heritage, 1997, p. 2); and at the local level (interactional), which captures the moment-by-moment interaction and how epistemic asymmetries are constructed and negotiated. In so doing, DMs are considered as dynamic devices. In order to draw a comprehensive picture of their meaning and functions, one should have to go beyond the situated interactions.

2.3.2 Previous studies on DMs in supervision contexts

The role of DMs in master and doctoral supervision sessions is meaningfully reflected in a growing body of research with particular attention to DMs used by the supervisors (Bansel, 2011; Fenge, 2012; Hopwood & Paulson, 2012). For example, Chiang (2009) provides a close analysis of two dyadic interactions conducted by a PhD candidate with her two supervisors in an American university to investigate the exercise of power through the use of *I think*. She concludes that professorial power may be performed in two different ways (i.e. personal and positional) and three types of communicative acts: directive, evaluative, and explanative. Another study is conducted by Bowker (2012), who highlights the supervisors' use of *yeah*, *okay* and *right*, to motivate a response after their

students' minimal response or silence. Bowker argues that these items function to pave the way for a more asymmetrical relationship between supervisors and their students in order to underline supervisory roles, mark transitions in the supervisors' talk, express doubt about the students' understanding or agreement, and to invite students to speak. They also help afford a more fluent negotiation of understanding and meaning of the content delivered, particularly when supervisors and students do not share the same linguistic background (which is the case of the first case study of this research).

Nguyen (2016, p. 90) uses CA to examine pedagogical practices in doctoral supervision meetings in an Australian-based university. One of his findings demonstrates that through the use of DMs, the supervisors manage to provide feedback in such a way that "assists students to preserve and enhance their autonomy and self-directedness" which in turn creates a delicate balance between guidance and developing student autonomy. DMs were used in giving guidance and factual information, giving feedback with equivocation, providing several options, withholding advice, and questioning.

Students' use of DMs has also been researched by Vehviläinen (2009), who examines master's supervision meetings in Finland. In particular, she focuses on student-initiated advice sequences and students' resistance to critical feedback. She found that students systematically seek advice in two formats, by invoking incompetence or lack of knowledge and by proposing potential problems and candidate solutions. The two formats are typically organised using DMs (i.e. *I don't know, but, I think, I mean*). She further indicates that the second format is more frequent since the sessions involved in her data are from encounters towards the end of the thesis work. She argues that "if the data

included more meetings from the initial planning stages of the thesis work, the data could perhaps include more cases of invoking incompetence" (Vehviläinen, 2009, p. 186).

Nevertheless, the complete picture of DMs' use in doctoral supervisory interaction remains unclear as supervisions are not contexts in which only supervisors have the right to initiate and direct interactions. Hence, as mentioned above, more research focusing on the bidirectional relationship between supervisors and students deems necessary.

2.4 DMs from a multimodal perspective: Identifying the research gap

This section focuses on the issues surrounding multimodality. The terms *co-speech gesture*, *coverbal* gesture and embodied behaviour (or resources, cues, conduct) will be used interchangeably throughout the thesis to refer to the coordination of different modalities. The section first provides a general perspective on the area of multimodal research, including definition of multimodality and the overall classification of gestures' types and categories. It then reviews previous approaches that focus on the role of gestures in human-human interaction. The third sub-section is devoted to the relationship between gestures and speech, whereas the fourth one discusses speech-gesture synchrony. The fifth sub-section narrows down the scope by reviewing some studies that conducted for DMs-gesture relation. The final sub-section outlines some of the challenges that a multimodal approach invokes. By presenting this background, the core research gap that this study is set to fill will be pinpointed.

2.4.1 Multimodality: Definition and classification

As briefly presented in chapter one, human-human communications, whether spoken or written, are constructed across multiple modes which involve much more than the exchange of textual information (Adolphs & Carter, 2007; Bezemer & Jewitt, 2009; Knight & Adolphs, 2007; Kress, 2000; 2003; 2010; Kress & Van Leeuwen, 2001; 2006; Levine & Scollon, 2004; O'Toole 1994; Serafini, 2011; Van Leeuwen, 2005; Van Leeuwen & Jewitt, 2001; Wagner, 2014; among others). This view leads to the core notion of multimodality, which takes place as a result of the rapid development of information technology and science (Adolphs & Carter, 2007; Kress, 2000).

Despite being a relatively recent field of application, the literature on multimodality provides various definitions of the term. In its broader meaning, Van Leeuwen (2005, p. 281) defines it as the "combination of different semiotic modes". Jewitt (2009a, p. 14) offers a more nuanced description of the term stating that it is an approach "that understand communication to be more than about language, and in which language is seen as one form of communication among other modes such as image, gesture, gaze, posture or any combination of these". Central to both definitions is the term *mode* which is defined by Jewitt (2008, p. 17) as "an organised set of resources for making meaning". Jewitt (2016, p. 70) adds that "all modes have the potential to contribute equally to meaning".

Enfield (2005), divides modes into two main channels: *vocal* (aural) and *visuospatial* with the former includes both spoken languages and prosody while the latter consists of the meaningful movements of gaze, hand, head and body postures. In this

sense, multimodality is viewed as a field of application, rather than as a theory (Jewitt, 2009a; O'Halloran & Smith, 2011). Lim (2011) offers a detailed account of multimodality based on three dimensions. The first one is the *phenomenon dimension* which refers to interpretation of meaning through the multiplicities of modalities and the repertoire of semiotic resources used. The second is *the domain of enquiry* which proposes multimodality as a site for developing theories and approaches specific to multimodal study (O'Halloran, 2011); while the third is *the analytical approach* which refers to "the task of capturing and analysing complex multimodal constructions of reality becomes imperative as the realm of the visual and the multimodal increasingly move alongside the linguistic through the advance of technology" (O'Halloran, 2008, p. 470).

Different frameworks and theoretical perspectives have been produced to explore how different modes are employed in the process of meaning-making including multimodal CA (e.g. Evnitskaya & Jakonen, 2017), multimodal corpus analysis (Rowley-Jolivet, 2012), social semiotics (Pink, 2011), multimodal reception analysis (Holsanova, 2013), systemic functional analysis (Lim, 2009), multimodal ethnography (Dicks, Soyinka, & Coffey, 2006), Multimodal Critical Discourse Analysis (Machin 2007, O'Halloran and Smith 2011), and a more recent hybridized approach which combines elements of Ethnography, Conversation Analysis and Multimodal (Inter)action Analysis (Doak, 2019, p. 31).

Of these, the three most prominent paradigms outlined by Jewitt (2009) and Norris (2012) are: (1) Social Semiotic Multimodal Analysis which is represented in the work of Kress and van Leeuwen (2001); (2) Multimodal Interactional Analysis which draws on the work of Norris (2004); and (3) Multimodal Discourse Analysis that is evident in the work of

O'Halloran (2004; 2008). The differences between these three approaches as suggested by Jewitt (2009b, p. 29), "stem from the historical influences and directions that have shaped them, as well as the emphasis each gives to context, the internal relations within modes or modal systems, and the agentive work of the sign-maker".

Prosody as well form an integral part of the multimodal ensemble (Romero-trillo, 2012). In everyday interaction, intonation carries heavy communicative loads that help speakers to comprehend the message encoded in any communicative process (Brazil, 1997; Couper-Kuhlen, 1993; 1996a; 2001; French & Local, 1983; Lomotey 2016; Zellers, 2011). A full understanding of human interactions could not be accessible without the interpretation of prosodic behaviour (Szekrényes, 2014).

Within the area of pragmatic studies, prosodic features have often been mentioned as critical clues to the functions of DMs (Aijmer, 2013; Hirschberg & Litman, 1993; Romero-Trillo, 2012; Schiffrin 1987) and as criteria for differentiating them from other parts of speech or clauses (Carter & McCarthy, 2006). For example, Aijmer (2002) found that the intonation patterns of "*now*" differ for the adverbial and the discoursal use of this item. Prosodic structures also become noteworthy when distinguishing between different discourse and pragmatic functions of the same lexical item (Bazzenella, 2006, p. 23, Aijmer, 2013, p. 16).

Yet, with a few other exceptions (i.e. Cabedo & Nebot, 2013, Dehé & Wichmann, 2010, Hirschberg & Litman, 1993; Komar, 2007), most studies on DMs make only passing reference to prosody (Aijmer & Simon-Vandenbergen, 2011, p. 238) probably because it is difficult to establish a clear link between how the utterances are segmented and the

multifunctional nature of DMs in communication (Aijmer, 2013). It is only very recently that the prosodic behaviour of DMs has attracted growing interest with the work of Romero-Trillo (2012; 2014; 2015b; 2015c; 2018) is of central importance in this regard.

2.4.2 Gesture types

Various categorisations for the typology of multimodal cues have been proposed (Roth, 2001), most of which are based on the pioneering system developed by Efron (1972), who identifies two primary categories of gesture. The first type is independently objective gestures which can have meaning on their own. This type is further divided into three subsections which include *deictic,* or pointing gesture, *physiographic depicts* and a *symbolic* or *emblematic* gesture. The second type is *logical-discursive,* which refers to gestures that are not independent; Instead, they can have meaning only in conjunction with speech. Efron further divides independent gestures into two subcategories: *batons* or rhythmic and *ideographic gestures*. Earlier work by Ekman and Friesen (1969), also propose another taxonomy of gestures which includes *emblems*, *illustrators, affect displays, regulators*, and *adaptors*. Krauss et al. (1996) described three characteristics of conversational gestures: (a) they accompany speech, (b) they are temporally coordinated with speech, and (c) they express a meaning related to the semantic content of the speech they accompany

However, the two proposals that remain the most widely applied are those offered by McNeill (1992) and Kendon (2004). Based on the work of Kendon (1983), McNeill (1992; 2000) proposed a framework that arranges body movement types into a continuum (see figure 2.4) which classifies body movements according to their communicative functions.

The order of gestures along this continuum is based on two criteria; the first one is their connection with speech (whether the gesture has meaning on its own, or its meaning is dependent on speech), and the second criteria is their connection with linguistic properties (whether the gesture has static meaning, or whether it could be compound with other gestures in a larger utterance. The move from left to right means that the obligatory presence of speech decreases and the stability of the meaning of the gesture increases (McNeill, 1992).

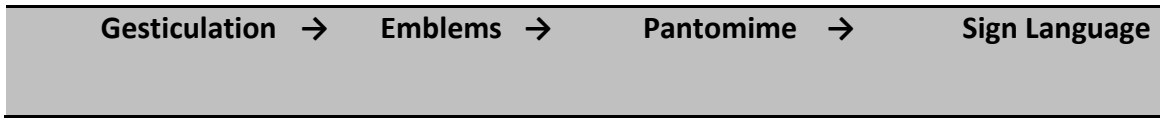


Figure 2. 4: Kendon's continuum (McNeill 2000, p. 2)

Particularly relevant to this study is the first dimension at the left of the continuum which refers to hand, arm, head and trunk movements made in conjunction with speech (Kendon, 2004, p. 104-105). Emblems refer to recognised gestures that can occur independently from speech with well-defined meanings such as the thumbs-up sign. The results of Matsumoto and Hwang's study (2013) reveal several variations in how people from different cultures use emblems. *Pantomime* and *sign languages* are mainly presented in the case of the obligatory absence of speech. In a later study, McNeill (2005) revised his original approach by proposing multiple continua instead.

McNeill further identifies four main categories of conversational gestures: (1) *iconic gestures* which describe the meaning of a referent or a picture that the speaker has in mind pictographically; (2) *metaphoric gestures* which are culturally specific gestures that are based on drawing images of abstract concepts that represent speakers' thoughts or

ideas (Beattie, 2003); (3) *deictic* gestures which are related to pointing towards an object); and (4) *beat* or *motor gestures* which are used as the rhythmical pulsation of speech to stress what the speaker is saying. Therefore, they tend to have the same form regardless of the speech content. These four types are particularly relevant to the coding schemes and the taxonomy of manual gestures in this study (refer to Chapter 3, 3.4.3).

Müller (2017) divides co-speech gestures into three types, namely, *singular*, *recurrent*, and *emblematic*. Of particular interest to this study is the recurrent gestures which are defined as "merging conventional and idiosyncratic elements that occupy a place between spontaneously created (singular) and emblems as fully conventionalized gestural expressions on a continuum of increasing conventionalization," (Müller, 2017, p. 278). Hence, they "work on the level of speech, fulfilling pragmatic functions" (Ladewig, 2014, p. 1559). Although there is a seeming intersection between metaphoric and recurrent gestures, the latter differs in that it refers to a stable form-meaning profile which could occur with different DMs and in different contexts (Ladewig, 2014; Bressem & Müller, 2017). As will be further detailed in the analytical chapters, specific types of gestures (e.g. the Open Hand Prone and the palm-down) have been repeatedly associated with different DMs while their "formational and semantic core remains stable across different contexts and speakers" (Ladewig, 2011, 2).

Another most-cited typology is Kendon's (1996; 2004) classification which suggests that gestures consist of "phases of bodily action" (1996, p. 8) which include: (1) *the preparation phase* where hands are in their proper configuration for the gesture; (2) *the stroke* which is the gesture itself; (3) and *the recovery or retraction* when hands return to a

resting place. Kita et al. (1997) refine these gestural phases to include *independent hold* (when the gesture stops while the hands stay motionless in its shape in the course of the stroke), *recoil*, and *partial retractions*. Although the coding scheme proposed for the current study (section 3.4.3) considers all the three phases, the focus will be mainly on the stroke as it is the only obligatory element (Lim, 2011, p. 155) and "the content-bearing part of the gesture" (McNeill, 1992, p. 376).

Kendon further indicates that a gesture can comprise two main categories. The first one is *gesture unit* which refers to the "excursion from the moment the articulators begin to depart from a position of relaxation until the moment when they finally return to one" (2004, p. 111). The second category is *gesture phrase* which defined gestures as "units of visible bodily action identified by kinesic features which correspond to meaningful units of action such as a pointing, a depiction, a pantomime or the enactment of a conventionalized gesture" (p. 108).

Despite being a valuable tool for gestures' analysis, some researchers (e.g. Karam & Schraefel, 2005; Poggi, 2002) claim that classifying gestures into specific types can be misleading since "gesture cannot be pinned down into a typology in any fixed way" (Kendon, 2004, p. 84). This concern is shared by Farnell (1994, p. 929) who points that gestures typology might generate false divisions between various forms of movement and hence, risk being "unintentionally moulded to the research questions being asked". Similarly, Stivers and Sidnell (2005, p. 1) claim that "different modalities could work together not only to elaborate the semantic content of talk but also to constitute coherent courses of action". While most of the available research of coverbal gestures is limited to

hand movements or eye gaze, this study extends its focus to include gaze orientations, head movements and body posture.

2.4.3 Speech-gesture interface

When talking about co-speech gestures, one of the critical questions arises is related to their role in the process of speech production (Cravotta, Busà & Prieto, 2018, p. 206; de Ruiter & de Beer, 2013). Two contrasting views in this regard have been proposed, the first one is held by Goldin-Meadow (2003), Kendon (2004), Hostetter and Alibali (2008) and McNeill (1992, 2005) who strongly support that gesture and speech derived from the same communication intention. In contrast, the second viewpoint is advocated by Krauss (1998), Krauss, Chen and Gottesmann (2000) and Krauss and Hadar (1999) who claim that gestures and speech are two separate systems and that gestures hardly serve any communicative functions as they are difficult to be interpreted in isolation. While it is apparent that the current thesis advocates the first standpoint, it is theoretically informative to provide a brief review of the other perspective as well.

2.4.3.1 Speech and gesture as two separated systems

One of the frameworks that supports this standpoint is the Sketch Model (De Ruiter, 2000) which has been built upon the speech production model proposed by Levelt (1989). In addition to iconic gestures, the model focuses on deictic, emblematic and pantomimic gestures while excluding the beats (de Ruiter & de Beer, 2013, p. 1022). The central assumption of the model is that the communicative intention of the speaker is divided into two parts: the *semantic representation* which “corresponds to the verbal part

of the communicative intention", and a gestural part which is based on "the imagistic information from short-term memory" (De Ruiter, 2017, p. 60). The model proposes three central assumptions relevant to the processing of iconic gesture in combination with speech. First, the gestural and verbal part of the utterance express different types of information. Second, the different information that gesture and speech express originates from the same communicative intention. The third relevant idea is that the distribution of "communicative load" over a gesture and speech channel is performed by the conceptualiser" (de Ruiter & de Beer, 2013, p. 1022) which is responsible for converting "a communicative intention into a semantic structure called preverbal message" (De Ruiter, 2017, p. 60).

Another model that advocates the separated systems of speech and gestures is the *Interface Model* (Kita & Ozyürek, 2003) which proposes that "gestures are planned by an action generator while verbal utterances by a message generator" (Goldin-Meadow & Alibali, 2013, p. 260) and that the two generators communicate bidirectionally. This communication "allows for the form of a gesture to be influenced by linguistic constraints of the speaker's language, as well as by visuospatial images in working memory" (Hostetter & Alibali, 2008, P. 507).

A third model is the Lexical Gesture Process proposed by Krauss et al. (2000). According to this model, gestures originate outside the communicative process; therefore, they are not components of the communicative intention of the interlocutor (Hostetter & Alibali, 2008, P. 508). The model further asserts that "the amount of semantic information that conversational gestures typically convey is small and, except under special

circumstances, probably insufficient to make an important contribution to listener comprehension" (Krauss et al., 2000, p. 441). Nevertheless, the results of an extensive body of research suggests that such claims are inaccurate as gestures do play an influential role in the interaction.

2.4.3.2 Speech and gesture as one single system

According to this view, gestures are going hand-in-hand with speech (So et al., 2009) carrying a complementary meaning at the semantic, pragmatic and phonological levels (McNeill, 1992; 1993; 2005; McNeill & Duncan, 2000). One of the influential theories that adopt this perspective is the Growth Point (McNeill, 1992; 2005) which contains both a global-synthetic element of representation expressed by gestures and the linear-segmented structure expressed by speech (Goldin-Meadow & Alibali, 2013, p. 258). The theory further emphasises the crucial role of contexts. McNeill (2005, p. 109) gives the widely known example in which one participant was recounting two attempts by an animated-cartoon character to use the drainpipe as a ladder to climb up a building. In the first attempt, in which the character was climbing the drainpipe from the outside, the speaker places the stroke of his gesture on the verb *climb up,* stressing the action (figure 2.5). However, when describing the speaker uses the same prepositional phrase to describe the ascent from the inside "he tries to climb up in through the drain inside the drainpipe", the stroke is shifted onto the words "through" and "inside" to profile the idea of interiority. Accordingly, in each case, the gesture-speech growth points served to the forefront "contextually newsworthy content".

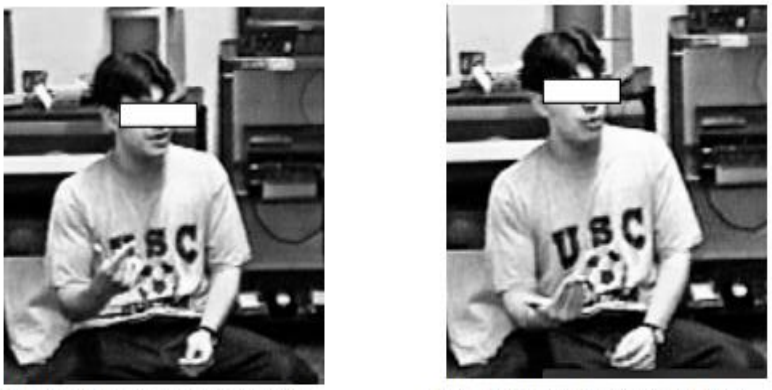


Fig. 1a. Pointing hand arcs upward with "he **climbs up** the drain"

Fig. 1b. Flat hand arcs upward with "cliimb / [up / in / **through** / the]"

Figure 2. 5: hand gestures accompanying the verb climb up (McNeill, 2005, p. 109)

However, the two models have received the criticism that the empirical research that they rest on is generally based on a small sample size. de Ruiter (2000, p. 306) criticises the growth point theory in terms of processing, claiming that it "does not give an account of how growth points develop into overt gestures and speech". Another limitation of these theories is that they are, in no small extent, predominantly concerned with hand gestures without fully considering the involvement of other body parts (Chen, 2018; Mühlbach & Ruschin, 2009). This may be somewhat justified by the fact that hands are the most salient parts of the body which are capable of performing a high number of functions (Vuletic et al., 2019). Additionally, examining multiple types of gestures typically consumes more time and requires the adaptation of different coding schemes which might result in "physical fatigue after long-term tasks" (Chen et al., 2018, p. 239). However, ignoring other gestural types such as gaze and head orientations "may lead to the neglect of certain valuable means of communication" (Chen et al., 2018, p. 239). Therefore, in order to attain an inclusive picture of the coordination between speech and gesture and their effect on the ongoing interaction, it is essential to take all available modes into consideration.

2.4.4 Speech-gesture synchrony

One of the essential features involved in coverbal gestures studies is their synchronisation with speech (Leonard & Cummins, 2011; Pouw & Dixon, 2019; Wagner et al., 2014). The findings of relevant research generally agree that there is close temporal alignment between coverable gestures and prosodic peaks (Casasanto, 2013, p. 373). For example, in their study on iconic gesture, Habets et al. (2010) found that they are finely well-timed with their semantically associated speech. Similarly, de Marchena & Eigsti (2010, p. 312) argue that "when gestures are poorly synchronized with speech, their communicative power may be diminished". However, other studies (e.g. Ferré, 2010; Flecha-García, 2010; Schegloff, 1984) claim that gestures could sometimes precede their accompanying speech by an average of 60 ms.

In their study on the initiation of repair, Floyd et al. (2016) found that coverbal gestures do not only synchronise but are also held until the end of the repair sequence. Kendrick (2015) found that facial gestures are employed as preliminaries to verbal other-initiation of repair. Another study conducted by Harrison (2010) suggests four different types of alignments based on different grammatical and contextual factors. These discrepancies in the results, as argued by Krivokapic et al. (2016, p. 1240) are partially due to "the imprecise measurements available to researchers". This leads other researchers (e.g. Wagner, Malisz, & Kopp, 2014, p. 218) to conclude that the gesture-speech alignment is better to be identified in terms of proximity rather than simultaneity.

Another question related to speech-gesture synchrony is how to lay down a baseline for the relevant onset of a gesture in relation to the accompanying speech

(Sikveland, 2012, p. 168). In an attempt to answer this question, many studies (e.g. Esteve-Gibert & Prieto, 2013; Krivokapic et al., 2016; Ambrazaitis & House, 2017) agree that the stroke of the gesture is commonly the target of coordination whereas its accompanying speech is referred to as the idea unit (Kendon, 2004). This synchronisation in timing and meaning between the modes creates gesture-speech *ensembles* (Bavelas, Gerwing & Healing, 2014; Bezemer & Kress, 2008; Kendon, 2004) or, as referred to by Mondada (2014a; 2016b), *complex multimodal gestalts.*

2.4.5 DMs from a multimodal perspective: Relevant Studies

As mentioned earlier, although the literature is prolific when analysing co-speech gestures, empirical research focusing on the multimodal aspects of DMs is relatively limited (Abuczki & Furkó, 2015; Baiat et al., 2013; Furkó, 2017). One key reason for this is probably the multifunctionality of DMs, which is likely to impose certain restrictions on undertaking such research. The studies overviewed below include research on DMs in English as well as in other languages, such as Mandarin, Hebrew, Hungarian, Italian, Spanish and French.

In English, Baiat et al. (2013) conducted a multimodal study on the marker *well* as it is used in spontaneous speech by both L1 (from the USA) and L2 speakers (from China, Germany, Greece, Hungary and Thailand). The results indicate that averted eye gaze and eyebrow movements were salient with relation to the marker under scrutiny. However, the researchers could not ascertain any particular relationship between the functions of *well* and accompanying hand gestures, nor do they provide any qualitative explanation for these results.

In Hungarian, gestures were found to play a vital role in the disambiguation of multifunctional DMs. For example, in his corpus-based study of the Hungarian DM, *ugye* (*certainly* or *is that so*), Abuczki (2015, p. 64) found that nonverbal cues help in the distinction between its two main functions. That is, when the marker serves an explanation meaning, it was very often marked by movements of the hands while the nonattendance of hand movement typifies its questioning function. Alternatively, the function of the marker as a questioning device yielded significant results in relation to the presence of eye contact.

A similar observation has been revealed by Yang (2013) who conducted a study on the multiple sayings of the mandarin DM, *dui* (right) using the analytical perspective of CA. The marker is found to serve two functions: to display an affiliation with the speaker's previous assertion; and to demonstrate the recipient's orientation to the continuation of the talk. The study further indicates that each type of *dui* is produced with distinct visual and prosodic features.

The relationship between prosodic feature and the function of DMs have also been indicated by Pichler (2013) who analyse the marker *I don't know* and other negative tags. Her results reveal four different ways of pronouncing the marker: the full *I don't know*; *I dunno*; *I dono* and *I divn't knaa*. Each of these forms corresponds to a particular function; for example, the full form is found to express a lack of knowledge. In contrast, I dunno is used pragmatically to serve different pragmatic functions such as closing a topic or avoiding an answer (Pichler, 2013, p. 192).

The Hebrew marker axshav (now) was also investigated in terms of its prosodic features by Gonen, Livnat and Amir (2018) who study its occurrences in everyday Israeli Hebrew conversations. The study concluded that most occurrences of *axshav* as DMs have characteristic intonation contour. Concerning duration, the analysis additionally found a significant statistical difference between its use as a temporal adverbial and as a DM when its performance was noticeably shorter.

All these results seem to reinforce the suggestion that the interpretation of the functions of DMs involves more than their verbal meaning (Abuczky, 2015) and that the multimodal data play a vital part in decoding the multiple functions of DMs.

2.4.6 Challenges in multimodal interaction research

Studying DMs is a complex task due to the heterogeneous and polysemous nature of the terms and the complexity upsurges even more when taking into consideration their concurrent audio-visual modes (for recent reviews see Bateman et al., 2017; Literat et al., 2017; Mondada, 2018). The first challenge that multimodal research poses is related to the annotation process which is a tedious task as it involves much manual work and requires a considerable amount of time even for a comparatively constrained set of conversational data" (Brône & Oben, 2015; Hiippala, 2017).

Kousidis et al. (2012, p. 1) summarise other challenges which include: (1) data quality in multimodal corpora typically requires sophisticated, expensive equipment, frequently accompanied by proprietary software that has to be learned and poses file format and other compatibility problems; (2) Naturalness of the content, which is highly

desirable for studying human behaviour, is challenged by the presence and type of sensors; and (3) re-usability requires appropriate planning and additional resources to make a multimodal corpus suitable for different studies.

In spite of all the challenges, there is no doubt that multimodal research is a beneficial and promising approach for investigating how multiple communicative means coordinate together in the meaning-making process. For DMs research, multimodal analysis not only enables a better understanding of their use and function by highlighting their neglected nonverbal aspects but also provides flexibility and creativity in producing diverse transcription methods and coding schemes to enhance the data analysis process.

2.5 Summary

In this chapter, the bases for the theoretical and analytical background of this study were presented. It can be seen through the literature review that there is no one-size-fits-all approach to researching DMs, especially in the scenario of doctoral supervision sessions where relatively limited literature on the use of DMs can be found. Furthermore, as gesturing is a fundamental constituent of utterance structure (Kendon, 2004), studying such units from a merely mono-modal angle may offer a partial understanding of their functions. Consequently, in order to elucidate the obscurity of such items, the analyses of DMs should include the verbal modes as well as their associated gestural and prosodic features.

This being the case, the current study takes a mixed approach in identifying potential markers from candidate items and attempt to discern their role in supervision

interactions. The assumption the current thesis holds is that DMs are not necessarily turn-initial devices, as Fraser (1999) claim, rather they are flexible in their position. As for the functional taxonomy of DMs, Fung and Carter (2007) framework is adopted together with reference to the notion of epistemic asymmetry (Stivers et al., 2011) with its three dimensions of access, primacy, and responsibility (refer to 3.2.2.1). The following chapter will elaborate on the methodological framework in more details.

Chapter 3: Methodology and analytical framework

3.1 Introduction

As discussed in the previous chapter, despite the growing interest in multimodal analysis in recent years, a commonly accepted analytical framework for the understanding and description of the multimodal nature of DMs has yet to be accessible (Abuczki, 2015; Crible, 2017; Hata, 2017). The existing multimodal models appear to display a variety of issues. They either take into account too few of the modes that affect multimodal interaction (Beeching, 2016; Bolly & Crible, 2015; Swales & Burke, 2015) or they do not adequately explain how different modes function together (Furkó, 2017; 2018). The principal aim of this chapter is thus to propose an innovative analytical model that can be utilised by other researchers to contribute new insights into the function and usage of DMs and hence add further data to the state of the art of multimodal analyses.

In addition to incorporating multimodality, the analytical approach adopted in this thesis resorts to a combination of two empirical methods: Corpus Linguistics (CL), which describes the distribution and function of DMs and accompanying nonverbal features at the macro level of analysis (Walsh et al., 2011), and Conversation Analysis (CA) which concentrates on the micro-level details of talk-in-interaction (Kern & Selting, 2013; O'Keeffe & Walsh, 2012). As shown earlier, the analysis of the data also draws on other frameworks in the field of epistemology including Stivers et al.'s work (2011) on the dimensions of knowledge in conversation and Stivers' (2008) research on stance. This multi-layered framework, as Dörnyei (2007, p. 273) states, can provide complementary

forms by “integrating embedded quantitative and qualitative data at different levels” which “makes the results more meaningful”. Furthermore, such a mixed-method approach can offer a full image that uncovers the complexity of the use of DMs in the multifaceted pedagogical setting of doctoral supervision sessions.

Accordingly, this chapter consists of four sections. The first section introduces CL, and CA as the central methodological tenets applied in this thesis. The section also presents some views on how DMs contribute to epistemological stance and the extent to which they convey affiliation and alignment. Section (3.3) then offers detailed information on research participants, data collection and processing and the ethical issue. Section (3.4) discusses the research design in more practical terms by explaining the principled operational procedure of data transcription and annotation as well as the developed coding scheme. The final section of the chapter addresses how the validity and reliability of data coding are achieved.

3.2 Methods for data analysis

3.2.1 Corpus linguistics (CL)

In the spirit of recent research that confirms the significance of CL for the study of language (Aijmer, 2013; Hunston, 2002; Milà-Garcia, 2018), the analysis starts with a quantitative description using CL which “helps in understanding what the language is like and in explaining how language is used by different speakers and across various registers” (McEnery et al., 2006, p. 6). Unlike theoretical linguistics which concentrates on the study of competence, CL studies performance and natural language use (Biber & Reppen, 2012). The empirical and authentic characteristics of corpus data help in making linguistic analysis

"more objective" (Aijmer & Rühlemann, 2015; Biber & Reppen, 2015) and in transforming research into what Hunston (2002, p. 157) describes as "situationally defined language variation". Tognini-Bonelli (2010) provides a useful distinction between approaching the data as a text versus as a corpus. When considering the data as a text, they are typically read horizontally as a whole. In contrast, data as a corpus are read vertically as fragments for "scanning for the repeated patterns" (p. 19). For example, Figure (3.1) illustrates concordances for some instances of *you know* in this data, which help indicate the different functions of the marker and identify the various contexts in which it occurs. These observations are quite challenging to pinpoint through manual analysis but "become apparent at a glance when using concordancing" (Bednarek & Caple, 2017, p. 21)

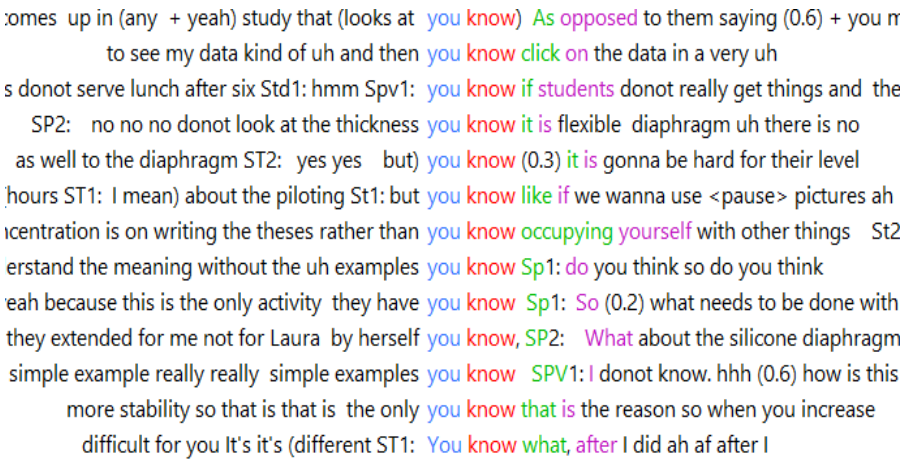


Figure 3. 1: concordance line for you know

From lexical and grammatical viewpoints, there are primarily three basic methods for processing data in CL, namely, *frequency*, *phraseology* and *collocation* (Sinclair, 1991; O'Keeffe & Walsh, 2012). *Frequency* is the initial step to identify a range of hits in a text as well as a list of the most frequent words. It is particularly useful to compare frequency lists

across different corpora such as the comparative analysis between L1 and L2 speakers' use of a particular item (Gablasova et al., 2017; Wolter & Yamashita, 2017). The second technique (i.e. phraseology) refers to the tendency of words or latent patterning to occur in a preferred sequence through a concordance programme (Hunston, 2002).

On the other hand, collocation refers to the tendency of specific sequences of words to reoccur in tight combination, either at the level of macro-structure or at individual collocations (Kennedy, 1998). In this study, frequency information is principally applied as the first step of approaching the data. The most common collocates of DMs are additionally scrutinised in order to create a lexical description and to reveal the overall picture of their use empirically.

Biber (2009) introduces three general approaches to CL: corpus-based, corpus-driven and hybrid. Corpus-based studies are those which start from an existing theoretical framework and examine pre-determined functions (Tognini-Bonelli, 2001). On the other hand, corpus-driven studies take an entirely bottom-up approach starting from the integrity of the data as a whole in generating functions that emerge from the corpus data without prior assumptions (Baker, 2010; Xiao, 2008). The present study can be defined as following a hybrid approach in the sense that it brings together some characteristic of corpus-based and corpus-driven approaches. It starts with preselected DMs and previously established functional categories, and simultaneously aims at identifying other distinct markers and interpreting their functions regarding the context, hence combining the advantages of deductive and inductive approaches. From a multimodal perspective, this will correspondingly allow examining the interactivity between the various modes and

how they collaboratively create meaning, providing the impetus for generating more detailed descriptions of behaviour (Knight et al., 2010).

Although CL has been applied extensively in analysing DMs and their related linguistic items such as lexical bundles and gambits (Adolphs, 2008; Babanoğlu, 2014; Biber & Conrad, 1999; O'Keeffe et al., 2007); its effectiveness as a methodological tool continued to receive intimidating criticism from different perspectives. One critique is that the findings of CL studies do not offer a full account of native speakers' intuition (Widdowson, 2000, p. 7). However, intuition by itself is unreliable when it comes to certain features of linguistic description as native speakers tend to perceive unusual patterns of language use (Biber et al., 1998, p. 3). Similarly, Stubbs (2001, p 151) states that a wide gap sometimes exists between intuition and real use of language.

Another argument that has been levelled against applying corpus-based approaches to the study of DMs is that by focusing on isolated utterances, the approach might not be useful for analysing DMs at the turn level which is central to the current study (Degand & van Bergen, 2016; Degand, 2018). Although corpus linguistic methods can distinguish DMs' use in turn-initial or turn-final positions, it cannot explain why students and supervisors use a specific DM in any particular way. Hence, a complementary qualitative method is needed to help provide more holistic insights and thorough picture of analysis in terms of turns exchange systems, topic management and the dynamics of institutional relationships taken place in this higher-educational setting (Haselow, 2018). Therefore, CL in this study is considered as a methodological tool which is integrated with

CA, which further examine the sequential organisation through various components of talk-in-interaction (Stokoe, 2012; Stone, 2017).

Although Corpus techniques today have enormously enhanced accessibility to data in describing verbal resources, they "still rely safely on transcribed products, without capturing the elusive context or non-verbal dynamics" (Gao & Wang, 2018, p. 18). By adopting a multimodal CL/CA approach, the analyses in this thesis seeks to provide rich insights into the data by regarding the embodied dimension of DMs not as ancillary to talk but as "one amongst a multiplicity of modes that may, at different moments in an interaction, take superior, subordinate or integral roles" (Wigham, 2017, p. 82).

3.2.2 Conversation Analysis (CA)

In addition to using CL as a methodological tool, this study draws principally on concepts from Conversation Analysis (CA), an analytical framework rooted in Ethnomethodology which investigates the sequential order of talk-in-interaction as being a fundamental aspect of human social life (Hutchby & Wooffitt, 2008; Schegloff, 2007; Sidnell, 2010; ten Have, 2007). Inspired by Garfinkel's (1967) interest in common-sense knowledge, Goffman's (1967) research on the interactional order, and further developed by the ground-breaking study of Sacks, Schegloff and Jefferson (1974), CA is characteristically an inductive approach that aims to elucidate how speakers use utterances to interact with others and the way they interpret their interlocutors' speech (Hutchby & Wooffitt, 1998). A significant theme in CA thus focuses on how participants' actual practices reflect their roles, identities, social categories and norms (Heritage, 2004; Seedhouse, 2004). These categories are not considered as existing prior to talk; instead,

they are context-shaped and context-renewing in that they "are shaped by localized settings" (Pascale, 2011, p. 116). In this respect, "actions in interaction are always contextually situated; they are produced by someone, for someone else, at a certain time, in a certain way" (Hoey & Kendrick, 2017, p. 3).

Similar to the procedures defined by Markee (2000), Seedhouse (2005) designates four critical principles of CA. The first principle is that talk in interaction has a systematically and sequentially organised order at all points in interaction. This assumption is, in some way similar to the notion of *recipient design* put forward by Liddicoat (2007, p. 6) which suggests that speakers typically design their talk "in such a way as to be understood by an interlocutor". In other words, the main interest of conversational participants is on the communication of actions and sequence organisation, rather than on the communication of the meaning of the message itself. The four typical sequential themes in CA, which are central to the construction of meaning include *turn-taking*, *sequence organisation*, *repair* and *preference organisation* (Seedhouse, 2004; ten Have, 2007).

The study of turn-taking in any interaction is essential since it has the potential to alter the parties' opportunities for action, and to recalibrate the interpretation of almost every aspect of the activities that they structure (Heritage, 1998, p. 5). In this respect, two notions are related to turns- at-talk, namely Turn Construction Unit (TCU) which refers to "the part of an utterance that might be a complete turn, after which another speaker might take over" (Have, 2007, p. 219).; and a Transition Relevance Place (TRP), which indicates the speaker's intention to exit from a turn.

The second sequential theme of CA is sequence organisation through which the activities and tasks central to any interaction are managed (Heritage & Clayman, 2011, p. 43). The term also includes the notion of adjacency pair and sequence expansions ((ten Have, 2007). Participants often orient their response to what has just been said and what might follow. Hence, the meaning of each action is greatly shaped in a co-constructed framework between participants through turn-by-turn exchange (Schegloff, 1984; Schegloff & Sacks, 1973).

The third essential pillar of CA is repair which refers to the process of fixing conversational breakdowns (Levelt, 1989; Schegloff, 1992). Repairs occur in a specific sequence generally referred to as the "repair mechanism" which is defined by Sakes et al. (1974) as a method for negotiating turn-taking errors and violations. A repair is normally considered successful if it is recognised and accepted by all participant (Ferguson, 1998). Further discussions in the subsequent chapters will show how repair in the current dataset is organised using coverbal gestures and specific prosodic features (refer to 4.3.3.2; 5.4.1, and 6.4.4).

As for preference organisation, it refers to different types of responsive actions which include agreement vs disagreement, acceptances vs rejections of offers and invitations, and other differences in responsive actions (Schegloff et al. 1977). Affiliative actions, such as agreements are typically delivered in a straightforward manner without delay. On the other hand, disaffiliative actions might be delayed by a pause, a prefaced DM or agreement tokens (Etehadieh & Rendle-Short, 2016, p. 175).

The second principle is that interaction is both context-shaped and context-renewing (Heritage, 1984, p. 242) which means that in order to recognise the meaning of a sequence of actions entirely, they should be firmly related to their local context in which they occur (Goodwin & Heritage, 1990, p. 3). The third principle is that naturally occurring data are indispensable for the study of conversation; therefore, in order to collect CA data, audio or video recordings of naturally occurring interactions in its local contexts are made with great emphasis on the thorough analysis of the details in interactions. As a result, the comprehensive CA transcription system with its verbal and multimodal components is essentially vital (Mondada, 2007; Seedhouse, 2004). The last principle is that the analysis of data follows a bottom-up approach or a data-driven approach as it does not entirely rely on prior theoretical assumptions.

Accordingly, ten Have (2007, p. 10) distinguishes CA from other approaches in the social sciences by four features: Firstly, CA works on audio or video recordings (as compared to coded representations of data applied in CL and Discourse Analysis), which can be observed repeatedly. Secondly, CA is primarily a qualitative methodology that focuses on the study of naturally occurring interaction which is different from experimentally produced data which might be affected by theoretical and subjective assumptions. The third principle is that interaction should not be seen as individual acts; instead, it is procedural and organisational, which is co-structured as an evolving event. The last principle is that the study of language use should concentrate on oral and visual aspects rather than the linguistic system.

Since the functions of DMs is tightly related to their position in the sequence, it is methodologically beneficial to study DMs within action sequences and more extensive stretches of talk (Bolden, 2009; Drew, 2012; Schegloff, 2007). This data-driven approach offers itself as an appropriate method for the study of DMs (Fischer, 2000, p. 45). CA additionally provides a useful tool for the understanding of the participants' roles in the interaction, and the interlocutors' understanding of it (Fuschi, 2015, p. 54). This naturalism of data enriches the understanding and helps in gaining genuine reflections on the function and use of DMs (Crible, 2017; Furkó, 2014).

While initially applied to mundane conversation settings, CA has also been widely applicable to other institutional contexts categorised by pedagogic goals and more restrictions on participants (e.g. Yu, 2005; Fuller, 2003; Heritage & Clayman, 2010, Holt, 2010; Markee, 2004; Schiffrin et al. 2003). It is therefore believed that applying CA to the context of doctoral supervision sessions can yield fertile data that assist tracing the development of intersubjectivity or shared understanding, in an action sequence (Seedhouse, 2004, p. 13). Vehviläinen (2009a) and Tsuchiya's (2010) studies are two examples of the scarce research applying CA to analyse Master and doctoral supervisions, respectively. Both studies concluded that CA is a powerful methodological tool for analysing talk in supervision meetings.

Recently, more attention has been drawn to the study of multimodality within CA (Deppermann, 2013; Heath & Luff, 2013; Mondada, 2008; 2016; Nevile, 2015; Rasmussen, Hazel, & Mortensen, 2014; Stone, 2017; Streeck et al., 2011). Other modes such as head and gaze orientations, hand movements, body posture and facial expressions are

substantial in the construction of meaning; hence they should not be considered as a distinctive channel of communication (Heath, 2004, p. 278; Parry, 2010). Nevertheless, the integration of multimodal techniques within the CA approach has its challenges as it is sometimes difficult to be applied (Deppermann, 2013). This has led Stuckenbrock (2014) to argue that fundamental concepts in CA, such as turns should be reconsidered, taking into account the nonverbal behaviour of all participants. In this sense, turns are considered as "unfolding, interactively sustained domain of multimodal conduct" (Hayashi, 2005, p. 21).

Despite its strengths, CA has been criticised for its lack of counting additional background information about the broader context which may support the understanding and the interpretation of the data (Eggins & Slade, 1997; Morton, 2012). To overcome this limitation, the current study integrated CA with CL approaches in order to embrace a more explicit focus on the interactional elements of DMs, which would lead to a more in-depth examination of the interactional organisation itself (Walsh & O'Keeffe, 2010). Critiques on the CA approach are also derived from its reliance on small data sets which is due to the time-consuming nature of the analysis which, in turn, makes generalisability a cause for concern (MacDiarmid, 2017). However, the main goal of the current study is not to offer any generalisable results; instead, it aims to provide a multimodal coding scheme to the study of DMs and to give insights into their distinctive role in shaping the interactions taking place in doctoral supervision sessions and achieving the institutional roles of the participants. Therefore, a combined CLCA approach is well suited to these particular purposes.

Before collecting the data, the intention was to apply a traditional CA approach building solely on the contextual information and the interactional patterns that emerge from the CL analysis. This is in line with the "unmotivated look" procedure that Sacks (1984, p. 27) refers to which means beginning the observation without expectations of what might be found since "much of the information that is needed to make these decisions will not be known until the research has been in progress for some time" (Blaikie, 2000, p. 37). Following the initial attempts at exploring the data, epistemology is considered as an interesting "candidate phenomenon" (ten Have, 1990) that deemed to be relevant and central to the subsequent analysis and discussion chapters. This concept and its relevance to preference organisation is briefly introduced below.

3.2.2.1 Knowledge and Epistemicity

One of the primary aspects that distinguish institutional talk from ordinary talk is that the former is typically goal-oriented (Bross, 2012; Enfield, 2011). As a type of institutional interaction, supervisory discourse is categorised by the broad aim of contributing to the ongoing knowledge-making endeavours (Vehviläinen, 2009). The active negotiation of knowledge between supervisors and doctoral students during supervision sessions is, in principle, the golden ticket into the successful completion of doctoral research (Mainhard et al., 2009). It is during these meetings that doctoral students seek supervisory guidance and make decisions about their research. Taking this goal-oriented feature into consideration, and following Stivers and Rossano (2010), and Heritage (2012) who argue for a recognition of epistemic in line with turn-taking, adjacency pairs and sequence organisation notions which are fundamental to the CA research agenda, the

analysis of DMs in this study is extended to include the notion of knowledge (or epistemicity) in order to describe the perceived pedagogical goals that doctoral supervision sessions relate to.

Doctoral supervision sessions are also well-defined by the differential distribution between students and their supervisors not only in terms of knowledge but also in rights and responsibilities to know (Sidnell, 2012). In this vein, Heritage (2012) introduces two key terms that are related to the idea of territories of knowledge in which he distinguishes between *epistemic status* which refers to the types of knowledge and *epistemic stance* which deals with epistemic rights displayed by claims of knowledge or insufficient knowledge. The latter, which has to do with the moment-by-moment unfolding of interaction is the primary focus of the current analysis.

Epistemology covers a wide range of concepts and can be operationalized under different labels including stance which is defined as "a linguistically articulated form of social action whose meaning is to be constructed within the broader scope of language, interaction, and socio-cultural value" (Du Bois, 2007, p. 139). Other studies of epistemicity in institutional discourse have based their analysis on the power and authority recognised in supervisors' talk (e.g. Heritage & Clayman, 2010). In recent years, however, "Higher Educational practice explicates changes on knowledge construction, skill development and interactional patterns" (Pan, 2017, p. 65). The success of a doctoral research project rests crucially on building a working and personal relationships between the supervisors and their doctoral students (Dietz et al., 2006; Lee, 2008). Therefore, there has been a move from a directorial approach where there is limited room for student autonomy to "a

laissez-faire approach where there is minimal supervisory intervention and maximum student autonomy" (Doloriert, Sambrook, & Stewart, 2012, p. 734).

Since doctoral supervision sessions concentrate mainly on the construction of knowledge, epistemics offers a powerful lens with which to view the construction of meaning in this institutional setting. The analysis thus embraces the idea that doctoral supervision sessions like all discursive practices are bounded incongruent behaviour, a focus presently absent in much research on institutional contexts (Fives & Buehl, 2012). Hence, this study moving away from a view of supervision session as a context of power to attend to the idea that the negotiation of knowledge is constructed in the interactions by all the participants.

3.2.2.2 The interactional practices of Affiliation and alignment

For conversation analysts, preference organisation has been closely intertwined with the concepts of affiliation and alignment (Lee & Tanaka, 2016, p. 2). Affiliative actions are typically preferred, whereas disaffiliated structures are generally dispreferred (Lindström & Sorjonen, 2012). The concept has also been related to the concept of agreement as affiliation sometimes means to take the same stance as the interlocutor (Steensig & Drew, 2008). Still, a disagreement could also be structured in an affiliative way (Petraki & Clark, 2016). Generally speaking, the ultimate aim of any interaction is to achieve affiliation and avoid conflict (Hertitage, 1984).

While alignment attains at the structural level of cooperation (Stivers 2008), affiliation refers to the creation and maintenance of social cooperation at the affective

level (Steensig & Drew, 2008; Stivers, Mondada, & Steensig, 2011). Following Steensig's (2013) call for more studies that analytically examine these two concepts, it seems legitimate to examine how, through DMs, affiliation and alignment are developed in doctoral supervision meetings. Built upon the analysis, DMs are found to be employed to create a shared positive interactional atmosphere during the supervision sessions. As will be further explained in the analytical chapters, it is suggested that affiliation and alignment can be negotiated and accomplished through the employment of specific DMs and their accompanying gestures.

To summarise, although CL and CA have different backgrounds and divergent analytical angles, they both share the characteristic feature of using naturally occurring data and focusing on collections of interactional episodes (Yang, 2014). Thus, emerging the two methodological approaches has the advantages of looking at both the macro and micro level of discourse (O'Keeffe & Walsh, 2012; Walsh et al., 2011). A synergy of the two approaches has been effectively applied in a number of studies in different contexts such as call centres in health care settings (Adolphs et al., 2004), seminar talk (Walsh & O'Keeffe, 2010), small group teaching context (O'Keeffe & Walsh, 2012) and political interviews (Carter & McCarthy, 2006). By looking at micro-contexts within a qualitative CA framework and a quantitative approach within the lens of CL, researchers are able to uncover the process of how and why DMs are used in talk-in-interaction, as well as to take their multimodal interaction and pedagogical relevance into account. In summary, the combination of CL and CA is invaluable in implementing the frequency and sequential features of DMs. When combined, they undoubtedly make a compelling approach.

3.2.3 Case study

Following the nature of the current research which is based on the interpretation of four supervision meetings with four participants, this study could be considered as adopting a case-study approach with its underlying intention of offering detailed descriptions of the participants' multimodal use of DMs (Hale & Napier, 2013, p. 112). Yin (2009, p. 18) defines a case study as "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". He further proposes two aspects of a case study. The first one is that a case study is an empirical investigation that examines a particular phenomenon in depth and within its real-life context (p. 18). The second aspect concerns its technical flexibility as it accommodates with different contexts and multiple sources of evidence.

Since the primary intention of this research is to develop a multimodal framework for analysis which focuses on a detailed description of all modes available, a case study approach has the potentiality of offering detailed accounts for the items under investigation while retaining full, meaningful features of real-life events (Crossouard & Pryor, 2009; Yin, 2009). Further, several researchers have indicated that the case study design can satisfy the requirement of multimodal research. For instance, Bao-Rozée (2016) and Gao and Wang (2018) use a case study approach in their investigation of the role of the interpreters in interpreter-mediated communication. In another study conducted by Bezemer and Jewitt (2010), the focus of the analysis was on one teacher, and the results of the study have proved to be effective (Sarangi, 2017).

However, as indicated above, there remain limitations of having only a small range of cases as this raises the concern of not providing enough scientific support in terms of generalizability (Yin, 2009). Still, the number of participants in this particular study is not considered as a validity problem since the main aim of the research is not to give a representative picture and accumulate sample cases for statistical generalization, but rather to provide a detailed multimodal analysis of all the participants engaged in the interactions. The total number of sessions which analysed are four. This number, based on the claim raised by Seedhouse (2004), is viewed as a rational database which could lead to reliable conclusions.

3.3 The data

3.3.1 Context and research participants

This study involves two doctoral students and two supervisors who voluntarily agreed to video-record their supervision sessions. Two meetings were recorded for each pair. The data for the first pair (ST1-SP1) were collected at the School of English and towards the end of the first year of the doctoral program. The topic of the thesis examines the polysemy of single-word verbs and phrasal verbs. The student (ST1) is a Saudi female aged 27, and the supervisor (SP1) is a Canadian male whose age is around 43.

The supervision sessions of the second pair (ST2-SP2) were video recorded at the school of Built Environment, more specifically the Department of Electrical and Electronic Engineering, few months before the final deadline of thesis submission. The thesis examines the design of a diaphragm Free piston Stirling engine for low-temperature power

generation. The student is a Libyan male aged 37, and the supervisor is an Algerian male aged 51. Although the two participants were Arabs and thus share the same L1 background, they used only English, and there was not any single instance of code-switching. For confidentiality, the participants have been referred to using abbreviations.

Although having a more diverse range of participants has the advantage of providing broader and more objective data to work with, the central goal of the current thesis is not to make generalisation, but to explore new approaches to the study of DMs by developing a multimodal coding scheme and applying it to a small dataset which could potentially be used as the basis for future studies. Hence, having two participants groups only is justified as it suits the purpose of the current study (refer to 7.4).

Most related research which involves L2 speakers has focused mainly on the question of whether or not they overrepresent or underrepresent the use of DMs and gauge problems with their usages (Babanoğlu, 2014; Huang, 2011; Liu, 2013). For example, studies by Gilquin and Paquot (2007), Müller (2004) and Wu et al. (2010) report that certain DMs are overused by learners of English and further attributed this to many factors such as language proficiency, L1 transfer, pragmatic fossilization, situational anxiety and developmental factors (Vickov, 2014). In contrast, Fung and Carter (2007) and Buysse (2012) report that some items are underrepresented in learner language, which they ascribe to the lack of concentration on DMs in English teaching materials. Both strands of findings further claim that the underuse or the overuse of DMs renders speech unnatural or non-native-like (Müller, 2005; Siepmann, 2005).

While differences of DMs use between L1 and L2 speakers are undoubtedly useful which are occasionally stressed in the current analysis, the use of underuse/overuse terms appears to propose that L1 language is taken as the norm and the ultimate goal of language learning and teaching, thus, L2 learners are seen as deficient users as compared to L1 speakers (Kaura & Ramana, 2014, p. 254). The model of the standardised L1 speaker being the only trustworthy resource of linguistic data has been put into question in recent years due to the increasing use of English as an international language which results in more people speaking English as an L2 than as their mother tongue (e.g. Crystal, 1997; Jenkins, 2007; Kramsch, 1998; Prodromou, 1997; Seidlhofer, 2017). More recently, Galloway and Rose (2015), Luk and Lin (2017), and Rose and Galloway (2019) have all stated that L2 learners should no more be considered as deficient native speakers.

Therefore, the present research, while acknowledging the impact of L1 on L2, is mainly interested in the interactional organization and the social-institutional norms of social activities, therefore, even with three of its participants speak English as their second language, discussions about underuse/overuse aspects of DMs are beyond the scope of this study as it is not contrastive in nature.

3.3.2 Data collection

Video-recording sessions were the primary source of data collection. Following ten Have (2007, p. 82) who suggests that collecting one's own recordings is more reliable "to get precisely the kind of data one wants" a decision is made to collect new data of doctoral meetings. However, one of the serious challenges faced is the recruitment of participants which was not straightforward due to the private nature of supervision sessions, which

makes some students unwilling to participate. Six students who apologised for not participating in the study said that the idea of the meeting being recorded might cause distraction in that they will not get the best out of the meeting. Other female students who were hesitant to be video recorded for cultural reasons said that video recording is considered to be too intrusive in a private setting such as supervision meetings.

Approximately 5.5 hours of video recordings (36729 words) are collected which were made over a period of four months (from March to June 2016). Summary of the four meetings is presented in Table (3.1)

Table 3. 1: summary of the supervision sessions

	Participants	length	Total DMs	Total gestures	turns
Meeting 1	SP1-ST1	1:30:18	513	173	1119
Meeting 2	SP1-ST1	1:31:46	487	67	1079
Meeting 3	SP2-ST2	1:19:52	408	59	1302
Meeting 4	SP2-ST2	1:07:27	341	54	1238
Total		5:29:38	1749	353	4728

In order to minimise the intrusion and to reduce the participants' consciousness for the recording, the supervision sessions are recorded without my presence as the video-cameras are left in the meeting room after being set before the beginning of each meeting. In order to record all nonverbal behaviours of individual participants, two professional cameras with built-in microphones and high-definition zoom function are used, one is fixated on the supervisor, and the other one is on the student. For the

purpose of retaining the spontaneity and naturalness of the interactions as much as possible, eye-tracking equipment has not been employed.

3.3.3 Data processing

3.3.3.1 Selection of DMs

Bearing in mind that there has been no consensus over what counts and does not count as a DM (Fraser, 2015; Groom, 2010), the main challenge that is initially faced is how to determine in a principled manner what items should be selected for the focus of analysis. After reviewing the literature, the decision made is to consider DMs that are syntactically and semantically optional (but not redundant), in the sense that their elimination from an utterance does not affect the grammaticality of the host sentence. After careful consideration and for the aim of embracing a relatively comprehensive variety of DMs, Brinton's (1996) inventory which includes 33 markers (table3.2) is adopted as the initial step for identifying DMs in the data.

Table 3. 2: DMs initially selected for frequency analysis (Brinton, 1996)

1	so	**12**	Ok	**23**	and (stuff) things like that
2	You (I) know	**13**	Actually	**24**	Sort of/kind of
3	I mean (think)	**14**	You see	**25**	Therefore
4	Like	**15**	Yes/no	**26**	After all
5	but	**16**	Just	**27**	Almost
6	ah	**17**	Basically	**28**	because
7	Really	**18**	oh	**29**	If

8	(go) Say	**19**	Right/all right	**30**	Then
9	oh	**20**	Or	**31**	Mind you
10	Uh/huh/mhn	**21**	and	**32**	Moreover
11	Anyway	**22**	Now	**33**	well

This inventory consists of an extensive selection of items ranging from connectives (*so*) to items that signal a potentially communicative intention (*you know, I mean*). It also includes a large variety of grammatical expressions that belong to different parts of speech such as conjunctions (*but*), adverbs (*actually, honestly*) and lexical phrases (*I think*). This relatively broad coverage has the potential to allow for a more fine-grained analysis that provides a comprehensive account of the use of DMs suitable in investigating doctoral-level interactions. Another central reason for choosing this inventory is that all of these DMs had been previously investigated in the literature on DMs in pedogeological contexts. Most relevant, the study of Fung and Carter (2007) include the markers *well, but*, *so*, *I think*, *actually*, *you know*, *say*, *right, yeah,* and *sort of*. Such richness in the literature provides a sound basis on which the results of the current analysis could be compared to.

All these markers were then manually searched in the data and choices to eliminate some tokens were made on the premise of their infrequency. For example, the markers (*and*, *if*, *because, after all, mind you, moreover, then)* were all excluded as the frequency analysis shows they occur very rarely (only three or four times); therefore, it is implausible to draw any conclusive findings about their discursive functions (see section 4.1). Furthermore, fillers such as uh, *umm* and *uh* have been excluded as well because they have long been considered either as filled pauses (Fox Tree, 2001; Corley & Stewart, 2008)

or as backchannel signals (Gardner, 2001; Ward, 2006). As it is suggested by Biber (1993; 2008) and Howell (2007, p. 111) that a sample of 30 observations sufficiently approach a normalised distribution, the decision was made that a DM had to occur 30 times in the whole dataset to be considered for further analysis

To make a list more comprehensive and to ensure high quality of the results, the automatic corpus searches were combined with manual analysis in order to screen for potential DMs candidates that are not included in the adopted inventory. Consequently, two other items that appear with high frequency in the total data, namely, *I don't know* and *honestly*, are also identified and added to the list. As previous literature indicates (Aijmar, 2013; Bybee & Scheibman, 1999; Cheshire, 2007; Kärkkäinen, 2010; Levey, 2012; Scheibman, 2000), these two items deemed to be suitable for analysis as DMs because of their prototypical meaning and their role in the interaction. Table (3.3) illustrates the final list of items that are included for subsequent analysis.

Table 3. 3: the final list of DMs to be examined

	DMs
1	So
2	You know
3	But
4	I mean
5	I think
6	Well
7	Kind of
8	I don't know
9	Or something like that
10	Anyway
11	Really

12	Ok
13	Honestly

The non-discourse uses of each expression were further identified and removed from the final list. For example, it is apparent that in example (1) below that *well* functions as an adverb while in example (2) it serves a discourse marking function and thus it is regarded as a DM:

1. she is bilingual which is (.) which helped a lot because she is familiar with the Saudi context (.) but she is American as ***well***
2. ***well*** it all depends on what you wanna do(right

3.3.3.2 Identifying functions of DMs

Owing to the different class of DMs included in the study, the approach followed in this thesis draws upon two interrelated levels of analysis. The first level scrutinises DMs according to the functional framework proposed by Fung and Carter (2007) who include four-fold framework: textual, interpersonal, referential, and cognitive (refer back to Chapter 2, 2.2.4). The rationale for adopting this model is that it offers a useful framework that offers comprehensive coverage of most possible functions of DMs as they are usually described in the literature which makes it suitable for analysing doctoral supervision discourse.

The second level involves a micro-analysis which considered DMs as distinct features of institutional talk and thus analyse their functions in different types of talk. As proposed by Walsh and O'Keeffe's (2010) and O'Keeffe and Walsh (2012), spoken

interaction in higher educational settings could be categorised into four different speech exchange systems which involves *organisational*, *instructional*, *argumentative*, and *discursive* talk. DMs were then subjected to further analysis according to their position in one of these exchange systems. The microanalysis further considers Stiver et al.'s work (2011) on epistemicity, which offers an insight into the variation of the use of DMs with particular attention to the display of knowledge.

As DMs can perform multiple functions simultaneously (Yang, 2014, p. 83) and in order to better account for the multifunctionality of DMs as they were encountered in the data, DMs that were found to serve more than one function were assigned a core function while also considering their other functions.

3.3.3.3 Ethical consideration

It is of vital importance that any research that includes human participants should be conducted in an ethical manner by obtaining the informed consent of all the participants (Flewitt, 2006; Hill, 2006). As Neuman (2012, p. 53) states that social researchers should be prompted that two sets of morals need to be well-adjusted, "the pursuit of knowledge and the rights of research participants". Therefore, prior to collecting the data (December 2015), the ethics of the research was obtained and granted by the University ethics review board. The four participants who voluntarily agreed to participate were then informed on the general aim of the research without giving in-depth details. That is, they were not told that the topic of study was on the multimodal use of DMs. Instead, they were informed that the research has to do with the general interaction between students and their supervisors.

In addition, two forms were offered to protect their rights: a consent for (see appendix 3) and an information sheet (Appendix 2) which provides an explanation on the data collection procedure, confidentiality of the data, preservation of their anonymity by using pseudonyms, and their right to withdraw whenever they want. In addition, the information sheet clearly indicates that the data would be used for research purposes only. The recordings of the four sessions were later safely stored on secured data storage obtained by the university.

3.4 Developing a multimodal analytical framework

The analysis of multimodal data is quite challenging as it incorporates multiple layers other than the textual level. This difficulty arises from the challenging task of "translating the audiovisual aspects into some printable format" (Norris, 2011, p. 79). In order to allow for the analysis of the different modes, the following sections further explain the design and criteria followed for developing a multimodal coding scheme that suits the purpose of the current study.

3.4.1 Transcriptions

Transcriptions in CA is vitally crucial as it enables the researcher to "become as intimately familiar with the object of inquiry as possible, thereby turning the act of transcription into an act of analysis (Gardner, 2004, p. 269). For the spoken level, the meetings were initially transcribed verbatim given the detailed multimodal data being presented. After building a collection based on microanalysis of the data, the excerpts of interest were then extracted and transcribed according to the Jeffersonian transcription

system which initially developed by Gail Jefferson (1985; 2004) and modified by Sidnell (2010; see Appendix 1) which represent details of talk-in-interaction. The system has been developed to represent a wide-ranging variety of standardised conventions which include other prosodic aspects such as overlaps, pauses, pitch, prolongation, the pace of talk, stress and cut-offs (Ten Have, 2007).

The strengths of CA transcription system lie in five main aspects that have been listed by Ten Have (2007, p. 32): (1) it is designed for naturally occurring interaction; (2) despite being criticised as too obsessed with the details, the transcription helps to operate closer to the analysis of the phenomenon; (3) the system is flexible "in response to the merging analytic needs and insights"; (4) it is a type of collective property that can be shared among audience and analysts; and (5) Compared with other conventions, CA transcripts are supposed to remain faithful towards the authenticity of the original interaction through including interactional details, which however can be time-consuming.

Nevertheless, it should be stressed that only the extracts that have been presented in the analytical chapters have been subjected to detailed analysis while a basic verbatim transcription was done to the rest of the data where the interactions are not relevant to the analysis. For the purpose of clarity and in order to stand out from the rest of the discourse, all the extracts are presented in `Courier New font`.

As for the transcription of multimodal features, and in addition to being described in double parentheses, some of Mondada's transcription conventions (2014) are employed which is considered as " the comprehensive model in the field for annotating the

multimodal features (Wagner, 2020, p. 298). The selected conventions are presented in the table below.

Table 3. 4: multimodal transcription conventions (drawn from Mondada, 2014)

Multimodal convention	Description
»	gaze towards the interlocutor
»«	mutual gaze
***------ >**	the multimodal action described continues across subsequent lines
------>*	the action continues until the same symbol is reached
Δ	co-occurrence of more than one nonverbal action
#fig	the exact point where a screenshot has been taken
#fig3.1	where more than one screenshot is presented, each is indicated by a number

The example below provides an interpretation of applying some of these conventions.

```
1. ST1:  generally what do you of uh think↑
2. SP1:  oh ↑just some typo and stuff uh and then (0.2) and then
3.       uh
4.      there're a couple of ones that I suggested they might be
5.      Better with This
6.      Δ»« ((tilting head to the right)) Δ-->
7.      rather than that 2-->
8.     ((tilting head to the left)) 3-->
9.     #fig1 some of them #fig2(0.5) LIKE uh -->*
10.          ((averting gaze))
11.      (1.3) because » with DCTes what you do uh might not work (.)
12.       Because it is not really about the person sometimes
```



Figure 3. 2: An example of multimodal transcription

At line (5), SP1 tilts his head simultaneously with mutual gaze (»«) which continues to take place (-->) till line (8) (-->*) when he averted his gaze, and then he gazes back at the student at line 10 (**»**).

After finishing the transcription, each supervision session was stored as a separate file with the students' and the supervisors' turns clearly marked with the specified abbreviation mentioned before followed by a colon (:). All the four files were then saved into TXT files and imported into the corpus analysis toolkit Antconc. A concordance line of each DMs was then generated in order to distinguish discourse from non-discourse usage. For systematic purposes, each figure was named with a unique code for identification. For example, "*Figure 3.1_2_18_30"*, 3.1 refers to the section where the figure is included. 2 refers to the number of the meeting from which the screenshot was taken while 18 and 30 refer to the exact minute and second respectively. This identification makes it easy to go back to the videos for further analysis.

In order to clearly represent the system of analysis discussed above which is a time-consuming and complex exercise, a range of annotation and analysis resources need to be applied for organising, coding, searching, and retrieving these units. Several studies

used widely adopted tools such as Anvil (Bunt et al., 2012), EXMARALDA (Schmidt & Wörner, 2009), FOLKER (Schmidt & Schütte, 2010), CLAN and Elan (Clark et al., 2016), Transana (Adolphs et al., 2011; Knight, 2011), and Praat (Romero-Trillo, 2012; 2014). On the other hand, there are some prominent studies that have developed their own annotation and analysis tools (e.g. Campbell, 2009; Knight et al., 2010; O'Halloran et al., 2012; Tsuchiya, 2013).

Following Bigi, Watanabe and Prévot (2014, p. 3386) who argue that "the annotation should be done with the most ergonomic and convenient tools for the given annotation task", the multi-level annotation process in the current study makes use of two multi-platform tools. Firstly, ELAN software (Wittenburg et al., 2006) is chosen for the linguistic and gestural annotation as "it enables a clear presentation of different tiers of linguistic and non-linguistic elements in its vertical layout" (Bao-Rozée, 2016, p. 95). In addition to being freely available, its flexible playback and time-aligned features support the multiple coding themes and alignment of transcripts with video recordings.

As explained by MacWhinney and Wagner (2010, p. 156), Elan software "provides a complete system for converting the Jeffersonian transcription conventions to an unambiguous and semantically accurate format". Besides, ELAN files can be converted easily into individual wave files required for the second tool, namely Praat (Boersma & Weenink, 2016) which was utilised for prosodic analysis in order to designate the tone contour for each marker and its surrounding utterances. As the two different cameras used in recording did not start precisely at the same time, the *Media Synchronization Mode* in Elan (figure 3.3) further helps fix this issue.



Figure 3. 3: synchronising of two video files in Elan

It is worth mentioning that the use of such software tools is only an aid to the systematic organisation of the material and is not in itself an interpretive device (King, 2010). However, computerisation of the data at different levels of specificity allows any researcher to work competently with high amounts of text and coding schemes, thus, facilitating depth and sophistication of analysis. Annotation of data in the above-mentioned tools are mainly represented in the form of tiers which are series of intervals defined by two criteria: time points (representing the beginning and the end of the interval), and a label (representing the annotation itself). Each tier was given a heading, and all instances relevant to that category was stored under that heading creating a broad subset for the purposes of both qualitative and quantitative analyses (Sloetjes & Wittenburg, 2008).

3.4.2 Annotation and tagging

Corpus annotation is defined by Leech (2004) as the procedure of attaching additional information and tags to the original data which has the advantage of enhancing the raw data in a way that suits the research aims. Once an interesting act or utterance is identified for further investigation, the annotation of data is an essential step of building a collection of it (Sidnell, 2010). However, data coding is "one of the most time-consuming and painstaking aspects involved in carrying out a research project" (Mackey & Gass, 2005, p. 248). So far, there does not exist any conventionalised conventions that collectively determine which behaviour to mark up, how to describe these behaviours, which labels to use in the annotation scheme, and how to integrate everything in the database to cover all multimodal elements of discourse.

Concerning the current data, the coding scheme follows a funnel-shaped process (Silverman, 2006) which commences by watching the video-recordings many times focusing in particular on stretches with DMs and multimodal cues. Owing to the fact that multimodal transcription and analysis are rigorous which means that an excerpt of a few minutes might take hours to transcribe (Bezemer & Jewitt, 2010), it is generally not practicable nor required to analyse all the videos in detail. For this reason, episodes from the video data are carefully chosen for a comprehensive investigation. The selection of these episodes is based on frequency evidence (i.e. the sequential patterns of the same DM co-occurring with a particular nonverbal phenomenon).

3.4.2.1 The multimodal coding schemes

To develop a systematic coding scheme, it is essential to prioritise the relevant details and overlook others based on the purpose of the research (Flewitt et al., 2009, p. 45). The challenging task is how to precisely represent these data in a clear and comprehensible manner (Kendon, 2004). To solve this issue, a multilevel annotation scheme is introduced to help identify DMs and other accompanying multimodal cues. The coding scheme also attempts to provide a holistic analysis where the importance of each mode in a real-time interaction is integrated exclusive of the presupposition that any one mode is inherently more important than another.

The first step of the annotation procedure is to segment speech into speech turns, which is quite central to the CA approach adopted in this study. The turns appear in two tiers, one for the supervisor and the other one for the student. A turn begins when a participant starts speaking and ends when a next speaker takes the turn (Cappella & Planalp, 1981). In the case of long stretches of talk followed by a pause or silence, the speech was annotated into Inter-Pausal Unit (IPU) which refers to a sequence of utterances surrounded by pauses longer than five seconds (Gravano & Hirschberg, 2011).

The second step was to segment each speech turn according to its management type (i.e. Turn-*maintaining*, *Turn-taking, Turn-yielding,* and *Turn-offering*), which serves to identify other uses of DMs in the study. Based on the decision tree proposed by Beattie (1982) (figure 3.4), each turn was further segmented according to its transitional type in order to signal out *smooth switch* which refers to the shift from one speaker to another without any overlapping or interruption; *overlap speech* (maximum three word stretches);

pause interruption when the speakers pause before finishing their utterance, *simple Interruption* with overlapping speech more than three words is; and *butting-in* which refers to a failed attempt of interruption.

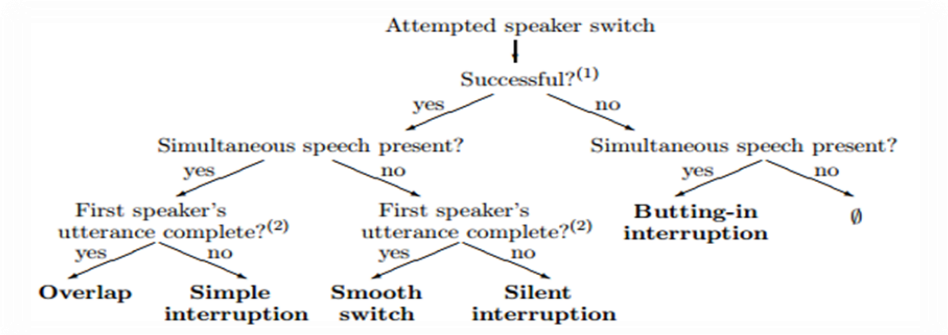


Figure 3. 4: the decision tree for the analysis of turn-taking styles (Beattie (1982)

Overlapping speech was additionally segmented into two main categories: *cooperative overlaps* when there is no competition overtaking the turn and *competitive overlaps* where competition over speakership takes place. After segmenting speech into turns and their types, the second step of the coding scheme was to manually annotate all instances of DMs which are previously defined in Section (3.1.3.1).

The third step of the annotation procedure was to annotate co-speech gestures. Every single occurrence of each marker included in the study was analysed to ascertain if it is coordinated with any type of embodied conduct. As for the way to describe the coverbal gestures' forms, Kipp, Neff and Albrecht (2006) suggest two methods, "by either a free-form written account or by gestural categories which describe one prototypical form of the gesture". Since the focus of this study is on gesture-speech relation, each embodied behaviour cue is given a basic linguistic description which was later identified in relevance to previous gesture's research.

The fourth step was to code the temporal relationship of speech and gestures which was divided into three categories: (1) Synchronous, where the different value between the DM and the stroke of accompanying gesture is 0; (2) *Anticipates,* which refer to values above 0; and (3) *Follows,* which indicates values below 0. The last step of the coding scheme was to annotate prosodic features of DMs, which, as mentioned above, was automatically marked in the phonetic software Praat (Boersma & Weenink, 2016).

As explained earlier, the multimodal features considered in this study are hand movement, head movement, gaze direction, posture and prosody which are all examined simultaneously in alignments with DMs in order to distinguish their communicative functions in the context under study. In what follows, a description of each of these channels is presented.

1. Hand gesture

Hand movements are exceptionally informative during face–to–face interactions, therefore, characterising their communicative functions is probably the most studied kind of co-speech gestures (Bhuiyan & Picking, 2009; Jiang et al., 2015). Their capability of taking different shapes and forms makes them invaluable to human interaction. Nevertheless, describing hand movements systematically by depicting their various shapes, orientations and positions in space while preserving the specifics of their dynamics and appearance, may turn out to be an almost unsolvable challenge (Müller, 2009).

As briefly presented in Chapter 2, researchers studying hand gestures have proposed various categorisations for their typologies, most of which are based on a series

of gestural phases (Kendon, 2004). However, no analysis of gesture, regardless of which aspect it focuses on, can avoid a proper characterization of gestural forms. Specifying the formal features of coverbal gestures in detail is a necessary starting point for any account of gesture (Tripp & Rich, 2012). Therefore, the categorisation of hand gestures presented here not only combines standard categories that take into account the gestures phases, forms and their communicative function but also encompasses the dynamic feature of verbal-gestural co-occurrence.

As for the taxonomies of manual gestures, the annotation scheme involves the four types of gestures described by McNeill (1992) and recurrent metaphoric gestures introduced by Ladewig (2011; 2014) and Müller (2017) (refer back to Chapter 2, 2.4.2). Self-adapting hand movements that lack semantic meaning (i.e. touching the face) are not included in the analysis (Jacobs & Garnham, 2007). To this end, the analysis of hand movements implies a correspondence between three hierarchal categories which includes: (1) a hand gesture's shape and orientation; (2) gesture's phase, and (3) a functional classification of gestures.

The description of the configuration and orientation of recurrent hand gestures is mostly a simplified version of the MUMIN scheme (Allwood et al., 2007), which is in turn based on the scheme used at the McNeill Lab coding method (Duncan, 2004). As explained in the table (3.5), the scheme distinguishes between whether a single hand is being used or both hands. It also takes into account the number of repetitions of the movement and the orientation of the palm (open, close) which is further divided into four basic angles according to its orientation: up, down, side or vertical (McNeill, 1992, p. 380).

Table 3. 5: configuration of recurrent hand gesture (Allwood et al., 2007)

Behaviour	**value**
Handedness	Single Hand, Both Hands
Hand-Repetition	Single, Repeated
Palm	Open, Close
Palm Orientation	Up, Down, Side, Vertical,
Amplitude	Centre, away, Periphery,
Trajectory Right Hand / OR **Trajectory Left Hand**	Forward, Backward, or Up, Down, Side Right, Side Left, Hand Complex, Hand Other

All hand gestures are further annotated according to phases using the values identified by Kendon (1980, 2004) which include:

- *the preparation* phase: the movement which precedes a hand gesture where hands are in their proper configuration for the gesture.
- the *stroke* which is the gesture itself.
- the *hold*, when the gesture stops while the hand stays motionless in its shape in the course of the stroke gestural phrase.
- *Retraction:* when hands return to a rest place.

2. Head gesture

In face-to-face human interaction, head movements have been found to fulfil several communicative functions that have clear associations with turn-taking and backchannelling (Knapp & Hall, 2010; McClave, 2000). Listeners typically nod to signal their

affirmation and shake their heads to signal negation. Speakers' head movements are also significant in marking a turn organisation process (Deng et al., 2004). For example, Kendon (2002) identifies eight different meanings for shaking the head while communicating, from reinforcing negation to adding a nuance of doubt to what the speaker was simultaneously saying while engaging in a head shake. It is, therefore, vital to analyse head gestures for a deeper understanding of human communication (Heylen et al., 2011).

Despite being an integral part of regulating interaction, there are fewer studies on the analysis of head movements compared to other nonverbal cues (Heylen, 2005; McClave, 2000). One reason for that, as noted by Poggi, D'Errico, and Vincze (2010) is that the annotation of head movement is complicated and time-consuming which, in turn, constrains the analysis over larger data (Allwood & Cerrato, 2003). Although this limitation might be overcome by existing detection algorithms available, most of these are designed to detect a limited set of gestures (primarily head nod and shakes) whereas in human interaction head movements vary significantly in form and variation (Gunes & Pantic, 2010).

Various coding schemes have been proposed in the literature. One of the earlier models is that developed by Frey et al. (1981), who classify head movements according to Spatio-temporal features. Their scheme distinguishes between 125 different head positions. However, such a complicated scheme is not practical with the current study, which involves long stretches of talk. Relying on the existing literature of head gesture, in particular, Hyden (2005) and Kousidis et al. (2013), the following steps are applied for the annotation of head movements in this study. Firstly, any head movement that might be

perceived as being communicatively related to a DM and turn-management was annotated by close inspection of the videos. This means that any head movements resulted exclusively from body posture shift are excluded. Second, the structure of Head Gesture Units (HGUs) consist of movement type which is defined purely by the directional movements of the head which involve left-right, up-down or front-back (DiCarlo et al., 2004).

Table 3. 6: Head gesture Portfolio (adopted from Kousidis et al., 2013, p. 2).

Label	Description
Nod	Rotation down-up
Jerk	Inverted nod, head upwards
Tilt	Sideways nod
Shake	Rotation left-right horizontally
Shift	Repeated slides left-right

3. Gaze direction

The saying "The eyes are the window to the soul" is mostly applicable in face-to-face interaction since gaze movements serve crucial conversational functions (Bavelas, 2000; Bavelas et al., 2002; Emery 2000; Rossano 2013). During speech, interlocutors use eye contact and diverted eye gaze to take, maintain or relinquish the floor (See Rossano, 2013 for a synthesis). For example, an early study by Kendon (1967) revealed that an averted gaze at the beginning of utterances are typically used by participants to take the turn while eye contact at the end of the utterance is customarily used for turn yielding. Additionally, through the analysis of interlocutors' gaze, one can infer their internal

emotional or cognitive states (i.e. being honest or their thinking state) (Takemae, 2010; Wang & Gratch, 2012).

Other researchers (e.g. McCarthy, Lee, Itakura, & Muir, 2006) relate gaze orientation to preference organisations. For example, it has been demonstrated that gazing at a conversation partner occurs more in affiliative situations and that averting gaze tends to appear in dispreferred turns or in situations which involve high cognitive load (Doherty-Sneddon & Phelps, 2005). Research has also shown differences in gaze norms across cultures in terms of the length of the gaze in particular situations (Knapp & Hall, 2002; Mittelberg, 2013). Extracting precise timings for gaze orientations is also important in face-to-face communication. For example, the results of the studies conducted by Sean, Mutlu, and Gleicher (2013) and Oertel et al. (2012) found that speakers establish mutual gaze approximately 2.4 seconds before relinquishing the floor. On the other hand, gaze aversions tend to vary in length as they are relatively shorter (between 1 and 2 seconds) when applied to take the turn while when signalling cognitive effort (i.e. looking away while beginning a response to a question) they are more extended, at about 3.5 seconds.

For the analysis and tracking of gaze direction in human interaction, researchers have employed eye-tracking systems (for a review see Chennamma & Yaun, 2013) which has the advantages of producing precise measurements of the spontaneous looking time and fixation patterns of the eyes. Nevertheless, they are not applied here because of the particular aspects of the recording. As the data for the present study are purposely meant to be collected in naturally occurring contexts, attaching any automatic software to the eyes of the participants will reduce the naturalness of the data, and hence, gaze

orientations are manually annotated in a frame-by-frame basis based on the scheme proposed by Cummins (2012) in which a twofold distinction was made between gazing-toward (eye-contact) and gazing-away (diverted gaze) from a partner while excluding other minor movements that are not related to the accompanying DMs. Gazing away is further divided according to its direction to include, to the note, to the screen, looking up, looking downs and others. This method has been effectively implemented in other studies (e.g. Bohus & Horvitz, 2011; Oertel et al., 2012; Oertel, Scherer, and Campbell, 2011; Sandgren et al., 2012).

Since some research suggests that the direction of the shift of the eye might indicate the purpose of the aversion (Andrist et al., 2014), Speaker's averted eye positions were additionally categorised into four directions: *right, left, up* and *down*. The gaze behaviour response of the other participant was also annotated in the same manner.

4. Body Posture

According to Hargie (2011, p. 63), human postures can include four positions which include, sitting, standing, lying down, or squatting. Each of these postures has its own variations and meanings in communication (Hargie & Dickson, 2004; Pease & Pease, 2004). Posture also offers insight into a culture's deep structure. In Arabic countries, for example, leaning forward while listening is a natural sign of involvement, increase rapport and intimacy (Chartrand & Bargh, 1999; Mehrabian, 1972). Other functions of body postures (particularly leaning forward towards the interlocutor) are significant clues that facilitate a common focus of attention (Kendon, 1990; Pasquandrea, 2011), negotiate participation frameworks (Goodwin, 1987) and convey the interlocutor's collaborative

action (Kendon, 1990). According to Schegloff (2007), one way in which participants signal to one another their availability to interact during the initial phase of a conversational encounter is through nonverbal cues such as body orientation.

Due to the specificity nature of this study where all participants were arranged in a seating position facing each other, the analysis only considers the upper-body movements, that is, from the waist upwards. In doing so, it is by no means to minimise the significance of the other bodily actions (e.g., legs). With regard to postural movements, there are two main methods of describing posture in interaction which vary from grid-based observational techniques to technical measures (Tan, 2010). For the purpose of simplicity, the current study employs Hargie's (2014) scheme which makes a distinction between three fundamental body posture shifts: *Towards lean* where the participants lean forwards towards their partners; *Away lean* where they lean backwards; and *other leaning* behaviour where they lean neither towards now away from their partners. Hargie further suggests that away lean indicates divergent nonverbal behaviour whereas towards lean signals converging behaviour.

Regarding the meaning of all these accompanying gestures mentioned above, they are not analysed only in relation to the meaning of the accompanying DMs. Instead, the analysis follows the four sources of gestures' meaning proposed by Enfield (2009) which involves considering the whole utterance in which DMs occur (i.e. what is happening now), the prior utterance (i.e. what has just happened), the interlocutor's response to it (what is happening next) and the form and characteristics of the accompanying gesture.

5. Prosodic features

Generally speaking, research on the prosodic structure of spoken utterances is based on two powerful frameworks: the Nuclear Tone model (Halliday, 1967; Brazil, 1985; 1997) and the Autosegmental-metrical framework (also known as Tones and Break Indices model (ToBI) (Beckman, Hirschberg & Shattuck-Hufnagel, 2005). Although the principles of these two models are noticeably different, the same intonational structure can be described with both models (Toivanen, 2015). Yet, the analysis of prosody in this thesis follows the traditional Nuclear Tone theory. According to this theory, the representation of prosody divides speech into tonality (units of meaning); tonicity (the placement of the tonic); and tone (the contour direction and shape of the melody). The rationale for using this model is that it is concerned with the description of intonation choices in accord with the context in which discourse is produced. This context is determined "by the real-time assessment of shared and unshared knowledge between the speaker and hearer" (Lomotey, 2016, p. 146). Unlike other approaches which linked tone choice to grammatical forms or attitudinal and emotional attributes, the model considers intonation as discourse sensitive and thus analyse intonation at the level of interaction (Chun, 2002; Goh, 2002; McCarthy, 1998).

According to standard British tradition, a tone group carries five underlying tones which encompasses falling (tone 1); *rising* (tone 2); *level* (tone 3); *fall-rise* (tone 4); or *rise-fall* (tone 5). Other researchers such as Cruttenden (1997) have offered other variety of tones distinguishing, for example, between low rise and high rise or between low fall and high fall. With regard to DMs, Romero-Trillo (2001) proposed an additional tone which is

referred to as Tone (0) in order to represent the cases in which a particular item appears without tonicity.

As a primary parameter of judgement, the present research will individually examine the use of the pitch contours of the five primary tones of English and tone 0 proposed by Romero-Trillo for the analysis of DMs. In most cases, the pitch contours of the surrounding utterances are also considered, which is particularly relevant to Tone 0, which indicates unmarked pitch values. In this case, the intonation contour is possibly added to other parts of the tone unit, and these must be taken into account when considering the meaning of the DM. With priority is being given to tones, other significant prosodic and temporal features are also considered, which include duration, loudness, surrounding silences, sound stretch, intensity and stress. As claimed by Beckman and Pierrehumbert (1986) and Kochanski et al. (2005), these prosodic features (in particular duration and intensity) are crucial to prominence which could sometimes be more informative than F0. It should be clarified, however, that prosodic stress used to add emphasis or contrast to the word whereas lexical stress used to differentiate between two words with similar sound structure (Kochanski et al., 2005; Couper-Kuhlen, 2001b).

The reason why the nuclear tone framework was chosen is because tones have the tendency to display non-arbitrary, meaningful patterns in discourse; hence they can accomplish different communicative functions (Mompeán-González, & Monroy-Casas, 2010, p. 230). The analysis of tone variability can, therefore, be influential in this regard (Boas, 2014). However, contrary to what it might at first glance appear, the task of classifying DMs into a particular tone contour is not a straightforward task as it requires

extracting each tonal unit separately, and even extracting the tones of the surrounding utterance for the purpose of offering a full picture of the learner's choice of tones.

As explained earlier, the distribution of these prosodic features is automatically annotated with the annotation tool Praat by extracting waveform files (.wav) (Boersma & Weenink, 2016). The movements of perceived intonation are segmented and annotated using five predefined categories of pitch progression that are available in Praat which involves stagnant, descending, fall, upward, and rise (Hunyadi et al., 2016). As for the discourse functions of these intonational features, the thesis follows the Discourse Intonation framework describes by Brazel (1985) who relates intonation choices to the speaker's contextually referenced insights rather than to grammatical or syntactic categories (Mat Nayan & Setter, 2016, p. 4). Figure (3.5) represents the standard functions of each tone contour.

Functions	Shape	DI code	Description	Meanings
referring	↘↗	r	fall-rise	shared information (common ground) togetherness
referring (dominant)	↗	r+	rise	shared information (common ground) togetherness control (dominance)
proclaiming	↘	p	fall	unshared information (new) separateness
proclaiming (dominant)	↗↘	p+	rise-fall	unshared information (new) separateness control (dominance)
opt out	→	o	level	formulaic (routine) hesitation

Figure 3. 5: representation of Brazil's (1985) Discourse Intonation Model (Kumaki, 2003, p.17)

3.4.3 Reliability and validity

The aim of coding scheme reliability is to test whether the proposed criteria are recognized in a consistent way by the coders (Maricchiolo, Gnisci, & Bonaiuto; 2012). According to Pedhazur and Pedhazur-Schmelkin (1991), the most commonly applied method to assess reliability in observational research is Cohen's Kappa (Cohen, 1960) which is a statistical method measures inter-observer or inter-annotator agreement. According to Bakeman and Gottman (1997), the threshold of testing coding reliability is (>.75) on the condition that the length of data is the same. However, multimodal coding schemes tend to have lower scores (Sathik, 2013) which could be the result of the multifaceted nature of multimodal data. Due to the exploratory nature of the current study, the aim of calculating an agreement measure is to "evaluate the schema itself rather than reach a high agreement" (Kousidis et al., 2013, p. 2).

Inter-coder (or interrater) reliability is defined as "the extent to which independent coders evaluate a characteristic of a message or artefact and reach the same conclusion" (Lombard, Synder-Duch & Bracken, 2002, p. 589). It is a crucial measurement for validating the subjectivity of the coded data and demonstrating that the produced annotations are consistent and informative when applied by individuals other than the scheme developer (Calabrese, Costa, & Menichini, 2013; Craggs & McGee Wood, 2005; Pedhazur & Pedhazur-Schmelkin, 1991). If similar results are produced by different coders, it infers that they have reached a similar comprehension of the annotation standards. Therefore, reliability is "a prerequisite for demonstrating the validity of the coding scheme" (Artstein & Poesio,

2008, p. 557). Reliability also signifies “the extent to which the data collected in the study are correct representations of the variables measured” (McHugh, 2012, p. 276).

In order to check the validity of the initial annotation scheme and to measure the inter-coder agreement, a reliability study was conducted. A chosen 10-minutes segment from one of the videos was annotated independently by two other annotators who were not involved at all in the development of the coding manual. Their annotations are then compared, and a coefficient is computed (Table 3.7). This small part of the data comprises 104 turns (2% of the corpus), which equals to 946 words (2.1 % of the whole data).

Taxonomy of categories evaluated in the reliability study included nine tiers (see appendix 4). After ensuring that the video extract is representative of the overall distribution of DMs and co-occurring gesture, the annotations of this extract are then used to measure inter-coder agreement in SPSS by calculating Cohen’s Kappa (1960) which considers the combined likelihood of agreement of two coders and scales it down by a factor proportional to the same probability of chance agreement (Reidsma & Carletta, 2008; Schluter, 2011).

There are different scales that have been proposed for assessing the significance of the kappa in between these values. The scale followed in this research is the one proposed by Rietveld and van Hout (1993), where the values from (0.21) to (.40) imply reasonable agreement, the values from (0.41) to (.60) suggest moderate agreement and those from (0.61) to (.80) indicates significant agreement. The values below (0.20) signify slight agreement, whereas those above (0.81) are almost perfect.

Table 3. 7: inter-coder agreement for different tiers (kappa values)

Tiers	Coders		Mean
	1	2	
Speech turn	0.93	0.91	0.92
Turn management type	0.81	0.89	0.85
turn transitions types	0.72	0.64	0.68
Turn timing	0.63	0.74	0.69
DMs	0.87	0.71	0.79
positional slot of DMs	0.62	0.69	0.67
Functions of DMs	0.52	0.49	0.51
Gesture form	0.82	0.62	0.72
Temporal relation	0.68	0.59	0.64
Total	0.73	0.70	0.72

The results of kappa values for the whole tiers were 0.72, which implies substantial agreement given the different categories to choose from. The distribution in the table above also shows that agreement is higher for signals such as DM and turn managements, and gestures' forms which is expected since these tiers types include the most categorical signals. DMs are fixed lexical expressions while gesture form and type also include a variety of unambiguous types of gestures such as if the co-speech gesture was a hand or a head movement which are easy to distinguish. On the other hand, the category for which the annotators mostly disagree is gesture functions. This leads to the review of their definitions to make them more transparent.

3.5 Summary

This chapter has explained the methodology and the data used in the current research, which includes representations of the participants, the selection of DMs and their functional categories. Most importantly is the design of a multimodal coding scheme which takes into account the annotation of DMs and their accompanying hand movements, gaze and head orientation, body posture shifts and prosodic features. Attention is also paid to turn construction and the effect of the role of the speaker.

As the study adopts a mixed-method approach by applying CL and CA techniques, both quantitative and qualitative analysis are conducted. The next chapter will firstly present the results from a quantitative perspective by applying CL analysis which provides a point of entry into the data. The results obtained from this analysis will further be approached from a qualitative perspective in chapters five and six.

Chapter 4: Corpus Analysis

4.1 Introduction

This chapter presents a detailed macro-investigation of the data using three basic CL techniques: frequency, keyword, and concordance analysis. This quantitative information is fundamental as it offers an indication of the general tendency of DMs use, hence laying the groundwork before moving to the micro-level of examination. As a reminder, the three research questions this chapter attempts to answer are: (1) which of the selected DMs do doctoral students, and their supervisors frequently use (2) what functions do these DMs serve? (3) What are the recurring multimodal resources participants turn to when using DMs?

The results are presented in three parts. The first level of investigation gives a full description of the distribution and frequency counts of the DMs under investigation to help indicate the general aboutness of the data. Building on pre-defined categories based on the work of Fung and Carter (2007), the section further identifies and discusses the prevailing functions of DMs as they are used by each participant. The analysis simultaneously touches on other issues, including the structural positioning that DMs occupy in speech turns, DMs clusters and polyfunctionality. The second part of the analysis examines the data from a multimodal perspective by identifying the type of embodied resources that frequently cooccur with DMs. The third level focuses on the analysis of the prosodic features of DMs. Finally, the chapter ends with concluding remarks which summarise the key findings.

As previously illustrated in Section 2.5, the marking of discourse can be performed not only by textual means but also by non-verbal resources. For instance, Bernad-Mechó and Fortanet-Gómez (2019) have noticed that the recurrent use of silence with a simultaneous change in posture may mark a topic-change, nevertheless, the main unit of analysis in this study is verbal DMs. Thus, in order for discourse marking to occur, there has to be initially a verbal reflection on the use of language.

4.2 Stage 1: DMs at the textual level

4.2.1 Overall frequency and distribution

According to Walker (2010), quantitative studies of pragmatic features such as DMs, generally adopt two main approaches: (a) identifying their forms by counting all occurrences of a particular item regardless of its communicative functions, or (b) identifying the functions by counting all of the lexical items that serve a particular function. Due to their multifunctionality and thus the daunting task of coding and quantifying them by function, previous research has mostly been restricted to the first approach concentrating on form rather than function (Wagner et al., 2015). The current thesis represents a preliminary endeavour to incorporate the two approaches in order to guarantee that each DM is being considered independently and that all were subjected to the same coding process, hence, minimising the subjectivity of the decision-making process.

The manual search for DMs over the entire data which comprises more than five hours of video recordings yielded a total of 1749 instances of DMs used by the four speakers which amount to 99.5 tokens per 10000 words. This high number of normalised

frequencies is yet not surprising considering that the study adopts Brinton's (1996) inventory which consists of 33 different markers. Out of the 33 markers included, 20 tokens appeared in fewer than ten instances; therefore, they are excluded from subsequent analysis. Table 4.1 offers a visual representation of the raw frequency and the normalised frequency per 10000 of the remaining 13 DMs, each of which has more than 50 occurrences in the data.

Table 4. 1: Top 13 DMs used in the whole data (normalized per 10,000 words)

Discourse markers	ST1	ST2	SP1	SP2	total	NF
So	32	23	123	86	**264**	72.8
You know	83	19	65	38	**205**	56.5
But	15	43	73	72	**203**	55.9
I mean	31	66	59	46	**202**	55.6
I think	51	64	15	49	**179**	49.3
Well	0	0	94	54	**148**	40.8
Kind of	40	0	67	4	**111**	30.6
I don't know	54	7	21	5	**87**	23.9
Or something like that	34	0	38	7	**79**	21.7
Anyway	7	28	19	23	**77**	21.2
Really	27	24	13	11	**75**	20.6
Ok	16	17	21	15	**69**	19.0
Honestly	2	23	3	22	**50**	14.8
Total	**392**	**314**	**611**	**432**	**1749**	

Among all the markers, *so* has the highest frequency with a normalised frequency of 72.8 per 10000 words. It is one of the most commonly used DMs in English, which is typically described as "characteristic of transition between activities" (Hellermann & Vergun, 2007, p. 175). The other three DMs that topped the list are *you know*, *but* and *I mean.* The four markers account for more than 67.2% of the DM occurrences in the total

data, which indicates their prominence in the interaction. A tentative explanation for this pervasiveness lies in the dynamic and highly interactive nature of dyadic supervision sessions during which supervisors and students are vividly engaging in discussions of a variety of academic and personal issues, which prompted the high frequency of these items

Nevertheless, further analysis of the data shows that the frequency and distribution of each DM are relatively not stable across the speakers. When calculating the use of DMs in relation to the total talking time for individual speakers, the results indicate that SP1 is the most frequent user (5 DMs per minute), followed by SP1 (3 tokens per minute) and then ST2 (2 markers per minute). The fact that the highest number of DMs are used by SP1 is an interesting finding as he is the only L1 participant. Although it is not the purpose of this study to compare the use of DMs by L1 and L2 speakers, this particular result may lend partial support to previous research regarding the comparison of DMs use between L1 and L2 speakers (e.g. Buysse, 2011; 2014; Müller, 2005; Fung & Carter, 2007). Table 4.2, which reports the five most frequent DMs as they are used by each speaker, shows clearly the inconsistency in their distribution.

Table 4. 2: Five most frequent DMs per speaker

ST1	No	NF	ST2	No	NF
You know	83	22.8	**I mean**	66	18.1
I don't know	54	14.8	**I think**	64	17.6
I think	51	14.1	**But**	43	11.8
Kind of	40	11.0	**Anyway**	28	7.7
and (or) something like that	34	9.4	**Honestly**	27	7.4

SP1	No	NF	SP2	No	NF
So	123	33.9	**so**	86	23.7
Well	94	25.9	**but**	72	19.8
But	73	20.1	**well**	54	14.8
Kind of	67	18.4	**I think**	49	13.5
You know	65	17.9	**I mean**	46	12.6

The Index of Pragmatic Use (Romerro-Trillo, 2002, p. 776) indicates that the supervisors use a considerably more significant share of DMs accounts for 68.7%, whereas the students' percentage was 31.3%. Applying Romero-Trillo's (2002; 2007) distinction between operative and involvement DMs, a clear difference emerges as the supervisors show a preference for operative markers which "make the conversation flow without disruption", as opposed to the two students' preference for involvement markers which "deal with the management of social rapport" (Romero-Trillo, 2007, p. 84).

DMs also exhibit unequal spread at the level of the individuals. To give an example, the markers *Kind of* and *or something like that* show frequent occurrences in SP1 data while being sporadic in SP2-ST2 interactions. In the same vein, *I think* and *honestly* are relatively infrequent in SP1 talk, but it occurs at high rates by SP2. *I don't know* also reflects different patterns of use by being particularly salient in ST1 whereas infrequent in SP2 speech. These great individual differences among the participants are in favour of the idea that DMs vary from speaker to another (Hesson, 2015, p. 175).

Despite the higher proportion in the supervisors' data, a simple calculation shows that among the 13 DMs listed, the two supervisors displayed personal preferences for

certain DMs namely, *so*, *but* and *well* which accounted for almost 47% of all DMs in their speech. In contrast, in students' data, the same percentage was accounted for with the use of eight items. Given that both students are L2 speakers of English, this greater variety in their data does not fully accord with the research findings of Aşık and Cephe (2013), Fuller (2003), Fung and Carter (2007) who all imply that L2 speakers tend to rely heavily on a restricted number of DMs. This limited usage reported in earlier literature has been attributed to various factors including the lack of instruction on DMs in language teaching materials and "a lack of natural language input in language classrooms" (Özer & Okan, 2018, p. 62).

On the other hand, the wide variety of DMs use by the two students does not apply to the marker *well* since the frequency analysis has revealed a total absence of the item in their speech. All instances of *well* in students' data demonstrate non-discourse use serving as adverbs with the meaning of *also,* as in the examples below:

(a) and I think the extension *as well* is just ah because they extended for me not for Laura you know
(b) It's yellow *as well* but but ah it's not that one hahaha

This total absence of *the marker* is particularly impressive given its prominence in DMs' literature (e.g. Aijmer, 2011; Bolden, 2009; Brinton, 1996; Gilquin, 2008; Cuenca, 2008; Defour & Vandenbergen, 2010, Romero-Trillo, 2002; Schourup, 2001; just to name a few). As reported by Norrick (2009), *well* is the fourth most frequent item in his corpus of spoken English, topped in frequency only by *yeah*, *oh* and *and*. One reason behind the lack of its use might be that the meaning of this marker is elusive; therefore, it does not have a clear correspondence in Arabic (AlKohlani, 2010). Research on SLA has given

comprehensive support for the effect of language transfer on the acquisition of DMs. For instance, Nikula (1996) reported that L2 speakers tended to favour markers that have close translation equivalents in their L1. Another assumption that accounts for its avoidance is that DMs that carry greater semantic weight are formally the only items that are explicitly introduced and taught in L2 classrooms; hence, they become part of L2 learners' repertoire (Hays, 1992; Müller, 2005). In contrast, *well* has an interactional characteristic that is more pragmatic and hence could only be acquired later (Hay, 1992). Additionally, since in most language classrooms *well* is formally being taught as an adverb or a noun (Tao, 2003), these grammatical meaning senses have become automatic and highly routinised to the extent that pragmatic fossilisation is established (Fung & Carter, 2007; Trillo 2002; Hays, 1992).

Another interesting finding obtained from the manual search of the data is that participants sometimes accommodate or adjust their DMs choice to resemble those of their interlocutors. In line with the Communication accommodation theory (Giles et al., 1987; Giles, Coupland, & Coupland, 1991), this adaptive strategy is perceived positively in interactions as it reflects the participant desire to converge the distance and creates social approval (Bunz & Campbell, 2004). The following three segments are examples of DMs matching.

1) SP1: what did you do, did you just give it to her and
2) say ***like*** do it (or
3) ST1: no) no no it was ***like*** an interview

1. ST1: The tests are ready the uh activities are ready so↑(0.2)

2. SP1: well I think it's literary just putting these things out
3. into examples ***so*** (1.2)
4. ST1: ***so*** (0.4)
5. SP1: Δ»« not too much stuff *I guess*Δ-->
6. ST1: yeah all the materials are ready to to show them
7. ***so2-->*** uh do you wanna do it ah like in next week-->*
8. SP1: no) uh no I don't feel ***like*** doing it the next week the week
9. after maybe

1. ST1: and I couldn't use uh like (1.0) change those three
2. eight uh thirty-eight items (***I mean***
3. SP1: no ***I mean)*** go and look at them again and see
4. if there is anything you can tide it up (.) see what
5. you can do but I would not make too many changes

Interestingly, this strategy is applied exclusively in ST1-SP1 interactions as their whole data show a total number of 93 instances with either the supervisors or the student echoing the interlocutor's DMs. This frequency of occurrence proposes the two participants' tendency towards achieving cooperation, engagement, and listenership (Cogo, 2009, p. 259; refer to 7.1.2.1).

Nevertheless, considering the general frequency of DMs solely has its own limits as it can hardly reveal any information related to their functional characteristics. In addition, the observed internal variation among speakers evidently demonstrates that the overall frequency does not always mirror the reality. In order to reach a more comprehensive picture and to map each speaker's detailed use of DMs, the next section offers a brief summary of the functional classifications of DMs.

4.2.2 Functional profile

Following the design described in the preceding chapter, each DM in the data is carefully examined and assigned a central function based on the framework offered by Fung and Carter (2007, refer to 2.2.4) which is comparatively similar to the model proposed by Bolly and Crible (2015), Bolly and Boutet (2017) and Crible (2017). As argued by Martínez (2011), in the lack of pre-defined functions, scholars might be obliged to depend on intuition to determine which function a given DM serve, which might be unreliable. Table (4.3) presents the functional distribution of DMs across the four participants. It is important to note here that despite the greater attention paid in assigning DMs' functions taken into account signals provided by the setting and the surrounding utterance, there remains a certain degree of indefiniteness as to the core functions of some tokens.

Table 4. 3: functional frequency of DMs across speakers

Macro-functions	**Micro-Functions**	Frequency	%
Structural	Signals links and transitions between topics	115	6.5
	Marks continuation of the current topic	96	5.4
	Opening/closing frame marker	119	6.8
	Summarising opinion	73	4.1
	Prefacing a question	89	5.0
Total		492	28.1
Interpersonal	Expressing shared knowledge	81	4.6
	disclaiming knowledge	42	2.4
	Indicating attitudes	63	3.6

	Face-saving	78	4.4
	seeking for a confirmation	69	3.9
	Hedging	73	4.1
	mitigate negative evaluation	79	4.5
	Indirectness/ to reduce commitment	82	4.6
Total		567	32.4
Cognitive	lexical search	27	1.5
	Hesitation	52	2.9
	Self-Repair/ reformulation	79	4.5
	Assessment of the listener's knowledge about the utterance	38	2.1
	Elaboration	29	1.6
	stalling for time/ Denotes thinking	23	1.3
Total		248	14.1
Referential	consequence	97	5.5
	Cause	78	4.6
	contrast	73	4.2
	approximation	61	3.4
	digression	82	4.6
	disjunction	51	2.9
Total		442	25.2
Grand total		1749	100

Overall, the most frequent functions of DMs in the data belong to the interpersonal domain comprising 32.4% of all DMs which reflects the participants focus on creating common ground and reducing the social distance between them (Yang, 2014; Grant, 2010). As Holmes and Stubbe (2003, p. 53) highlight that formal meetings generally have

two core aims, “getting things done efficiently while constructing and maintaining collegial relationships”. The second frequent functions are the structural (28.1%). However, DMs in the cognitive domain stood as the least employed types (14.1%).

When looking at the normalised frequencies per ten thousand, one might see a slightly different picture from the overall distribution of functions. Regarding the structural category, the normalised frequencies were 523 and 214 for the supervisors and the students respectively, which designate that the two supervisors use structural DMs three times as frequently as the students. Observations like these could give credit to the proposal that the functions of DMs might differ in accord with the institutional roles and responsibilities assigned to each speaker (Fuller, 2003; Fox Tree, 2010). More discussions on these differences are provided in the next two chapters.

4.2.3 The positioning in turns

DMs have long been described as occurring turn-initially or at the left periphery (Aijmer & Simon-Vandenbergen, 2011; Fraser, 1999; Degand, 2014; Lenk, 1998; Schourup, 1999). According to Fraser (1999, p. 938) “almost all DMs occur in initial position, fewer occur in medial position and still fewer in final position”. Indeed, some researchers consider the initial position as a criterial feature of DMs that distinguishes them from other grammatical uses (Aijmer & Simon-Vandenbergen, 2004), therefore, for an item to be classified as a DM, it “has to be commonly used in initial position of an utterance” (Schiffrin, 1987; 328). Alternatively, other studies suggest that DMs in turn-final positions, though less common, is not exceptional (Degand, 2011; Haselow, 2012; Strauss & Xiang, 2009).

The analysis of the current data (figure 4.1) reveals a similar trend with the majority of DMs (41.6%) occurring at the beginnings of turns where they contribute hugely to the construction and projection of various interactional works by intersecting the preceding and following turns (Kim & Kuroshima, 2013; Schegloff, 1996).

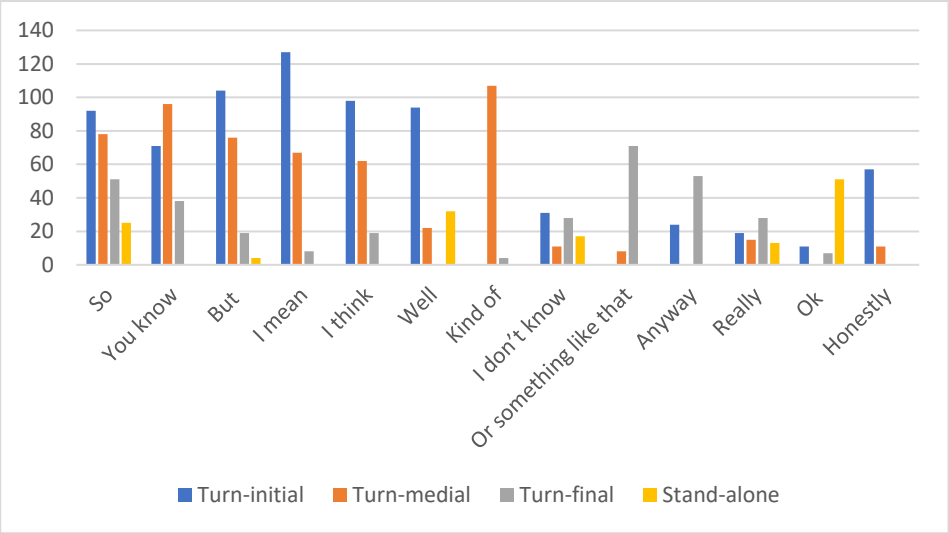


Figure 4. 1: overall distribution of DMs according to turn position

However, some expressions including *so, you know,* and *I don't know* enjoy high positional flexibility, occurring in initial, medial, and final positions of turns. This flexibility probably gives the impression that they may arbitrarily occur anywhere in the interaction with no special strategy in mind (Schourup, 1985). As will be proved in the subsequent discussions, further analyses uncover that this assumption is not strictly the case.

Other markers, namely *kind of* and *or(and) something like that* seem to be more sensitive to a change of discourse position, in that, the former tends to occur overwhelmingly in medial positions whereas the latter is restricted to the final position. This positional preference suggests that the markers' functions are better accounted for by their positional slot in the utterance. Note that, as has been earlier described in the

methodology chapter, the positioning of DMs in this thesis is identified at turn-level rather than at clause-level. If the syntactic structure was taken into consideration, the distribution of DMs could be different with more tokens preceding clauses occurring turn initially.

Following these initial observations, a question arises concerning whether the position of DMs in the utterance tends to favour specific meaning and functions. In order to address this issue, all occurrences of DMs were analysed according to their position in the utterance and with reference to the pragmatic functions assigned for each of them. The results are shown in the figure below.

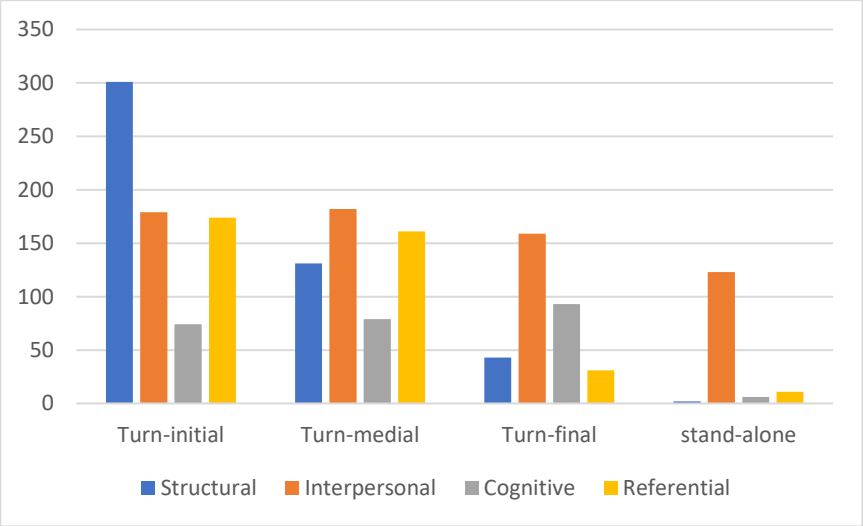


Figure 4. 2: distribution of DMs according to turn position and function

As can be seen, the initial position of DMs is occupied mostly by structural markers (28.5%) which, therefore, could be considered a prototypical position of this functional category. What is more interesting is the flexible occurrence of interpersonal DMs which

are present in all turn-positions, 27.8% in turn-initial, 28.3% in turn-medial, 24.7% in turn-final and 19.1% as stand-alone markers.

Arguably, it is difficult to draw any thoughtful conclusions about the use of DMs based merely on their position in turn. In most cases, to determine the core functions of DMs, it is necessary to take into consideration not only their position in turn but also the co-occurring prosodic and visual features.

4.2.4 Combinations of DMs

Another multi-faceted aspect of DMs that has been rather disregarded until recently is the case when two or more items are used in combination (Cuenca & Crible, 2019, p. 171). These strings of co-occurring DMs are referred to in the literature by a variety of terms, such as clusters (de Rooij, 2000; Scott, 1997), discourse marker combinations (Fraser, 2013; 2015; Bordería, 2018), recurrent word-combinations (Altenberg, 1998), Discourse marker sequencing (Koops & Lohmann, 2015;), lexical bundles (Biber et al., 1999; Nesi & Basturkmen, 2006; Biber, 2007), statistical phrases (Strzalkowski, 1998), multi-word discourse markers (Dobrovoljc, 2017), n-grams (Banerjee & Pedersen, 2003), formulaic language (Millar, 2009) and compound pragmatic markers (González, 2004). The term adopted in this study is DMs clusters as it is deemed to be more inclusive (Crible, Degand, & Gilquin, 2017). Despite the large amount of research on DMs, “no satisfactory explanation is available yet for why certain DMs combine while others do not” (Fraser, 2015, p 48).

With the help of the cluster and N-Grams tools in Antconc, an extensive list of two or more adjacent lexical items are first created and further refined to comprise only clusters of DMs. Table (4.4) captures the most common combinations, as evidenced from the data. Other clusters whose frequencies do not exceed five times across the whole data set have been ignored.

Table 4. 4: the most frequent DMs combinations

DM1	DM2	Total
but	*You know (27), I think (21), I mean (19), anyway (9) honestly (3)*	79
so	*I think (39), yeah (18) ok (5)*	62
Well	*I think (32), you know (9)*	41
yeah	*But (29), I think (6), I mean (3)*	38
Ok	*But (18), so (6)*	24
I think	*You know (9) honestly (2)*	11

The table shows that DMs clusters account for 14.5% of all the occurrences of items. This percentage is comparatively similar to Crible's study (2018) who reports that DMs clusters count for 15.77%. A first glance displays that DMs clusters are relatively frequent with two typical markers, namely *but* which regularly signals a contrasting relation; and *I th*ink which often marks the subjective orientation of the speaker. In fact, more than two-thirds of all the occurrences of *but* (126 out of 203) are combined with other markers which could indicate that its pragmatic force is largely influenced if it clusters with another marker.

The result also reveals that the four markers that constantly appear in combination with but are: *you know*, *yeah, I think* and *I mean*. Such combination may suggest that the speakers' arguments are indicated in two different manners. *But you know* serves the function of relating the argument to the interlocutor and thus is considered as serving common ground-related functions. The same interpretation holds true for the cluster, *yeah but* which typically serves the function of mitigating disagreement by acknowledging the prior contribution of the interlocutors. In contrast, *but I mean/I think* signifies epistemic stance and the speakers' commitment towards the validity of their claim. This means that DMs clusters can operate on different levels of discourse (Koops & Lohmann, 2015). Furthermore, most of these clusters are more frequent at turn-beginning rather than within turns. An example for turn-initial DMs cluster is given in the following extract.

1. ST2: Do you think we could have the viva in early
2. September because (.) I think You have holiday during summer
3. SP2: Yeah I will be away for three weeks in August
4. ST1: August yeah↑
5. SP2: but I think we need uh before I go away, we need to make
6. sure that you are only left with you know light touches
7. in terms of modifications and things like that rather
8. than the main chapters

SP2 (line 5) here uses *but* to indicate a slight shift in the topic from talking about the possible date of the viva to the work that should be done to finish the thesis. The marker is clustered with *I think* which indicates that the supervisor is about to specify his stance and at the same time indicates a mild contrast to SP2's turn.

A close observation of these combinations and their surrounding discourse shows that their co-occurrence is not a mere coincidence. They could either reinforce each

other's functions or occasionally create a new function. As for the former, DMs clusters in the following extract seem to strengthen the meaning of the markers.

1. ST1: I need to take control *I know but* uh *but I think* um
2. we should include them or (0.9) it's gonna be hard for
3. their level to understand the meaning without the uh
4. examples you know
5. SP1: do you think so do you think the examples make it much
6. of a difference?
7. ST1: yeah yeah if it is a simple example really really
8. simple examples you know

As explained by Blakemore (2002) in her relevance framework, *but* tends to activate an inference that is linked to contradiction and disagreement. What comes after *but* usually contradicts with the hearer' assumption. Consequently, in the extract above, the marker *but* is used in clusters (*but I think*) in order to lessen the utterance which enables the speaker to avoid disagreement by hesitating and softening the utterance while, at the same time "positioning herself as someone with an opinion" (Kobayashi, Grout, & Rump, 2013, p. 18). The example below represents another segment that contains DMs combination:

1. ST2: for the design I used sketch up to draw them in
2. three dimensions uh do you (think is it
3. SP2: *well I think↑)* as long as it is neat and shows your
4. uh your drawings neatly it is fine

The student raises a question related to the app he should use for drawing the required photos for the engine. Before he finishes his question, the supervisor interrupts him initiating his overlaps using "*well I think* "which is accompanied by a specific gesture

(see section 6.4.1). This cluster creates a sense of consistent link with what the student has been saying. These two examples may suggest that the recurrent use of DMs clusters is, in principle, systematic rather than random.

To summarise, the frequency analysis presented above has evidently revealed many fundamental aspects of DMs. However, given the highly skewed distribution of the markers among speakers, it is necessary to further investigate the functions of DMs in a turn-by-turn basis taking into account the nature of the context and role of the participants. This is why a CA framework is incorporated into the analysis in the subsequent chapters. However, it should be made clear that the functions of DMs presented in this thesis are not to be seen as forming a taxonomy of all the possible functions DMs can have in spoken discourse in general, but only the functions they have in the current data. The following sections extend the corpus analysis to discuss how coverbal gestures are employed as crucial interactional resources in the data.

4.3 Stage 2: Prosodic features of DMs

This section starts with the big picture by giving a quantitative description of the prosodic profile of all DMs. As earlier explained in Section 3.4.1, the analysis of prosody in this study is based on the discourse intonation model proposed by Brazil (1985; 1997) which considers the tone unit as the first building block (Kang & Johnson, 2015). By being automatically measured in Praat (Boersma & Weenink, 2016), the analysis also indicates other prosodic features like loudness and intensity. With regard to restricting the analysis to the tone unit, it is due to the fact that the tone unit is relatively straightforward to

measure. Therefore, the application of this model is particularly relevant as the data analysed is based on naturally occurring discourse.

4.3.1 Distribution of tone patterns

Table (4.5) provides an overview of the frequency and distributions of each DM according to the nuclear tone it carries.

Table 4. 5: Distribution of tone patterns of DMs

DMs	Tone 0	Tone 1	Tone 2	Tone 3	Tone 4	Tone 5	Total
So	228	11	17	8	0	0	264
You know	98	21	53	0	33	0	205
But	86	18	36	21	39	3	203
I mean	98	9	39	7	36	13	202
I think	48	23	49	13	40	6	179
Well	57	7	32	8	36	8	148
Kind of	87	10	5	9	0	0	111
I don't know	0	7	31	0	49	0	87
Or something like that	0	11	21	0	47	0	79
Anyway	4	16	14	15	28	0	77
Really	19	13	28	4	11	0	75
Ok	4	32	27	6	0	0	69
Honestly	7	19	11	0	13	0	50
Total	**736**	**197**	**363**	**91**	**332**	**30**	**1749**

The majority of DMs investigated in the study (42.1%) are realised with Tone 0, which means they do not carry any tonicity value (Romero-Trillo, 2001; 2012; 2018). This

result is meaningful since, with tone 0, the prosodic value is possibly added to other utterances in turn other than the DM. Instances of this tone is represented in the following extracts:

1. ST1: ***so*** *this*↑ one is a very small uh **a** smaller one?

2. ST1: I haven't check it, **but** *Benjamin*↑ mention it in the group

In the two examples, the underlined DMs are unstressed as they do not carry any nuclear tone, but other segments of the speech are prominent. For instance, in 1, there is a nuclear rising pitch accent on "this", while in 2 the nuclear rising pitch accent is on "Benjamin".

In his study of the prosodic features of DMs, Romero-Trillo (2018) similarly concludes a general tendency for *well,* and *I mean* to occur without prosodic prominence. This lack of tonicity could be related to the loss of semantic value of DMs and thus is seen as typical of the grammaticalisation process where an item has undergone changes from a lexical to a more abstract discourse meaning (Bybee, 2001; Dehé & Wichmann, 2010, Wichmann et al., 2010). This assumption will be discussed in more detail in section (7.2.3).

In addition to Tone 0, the second favoured nuclear tones are Tone 2 which comprises 20.7% of all contours, followed by Tone 4 (18.9%), and Tone 1 (11.2%) while Tone (5) and (3) have the least dominating role. Brazil (1997), terms tones (2) and (4) the referring tones which are typically used to highlight the pre-existence of shared knowledge with the interlocutor (Sadoune, 2018; Kumaki, 2003). In comparison, Tones 1 and 5 are referred to as the proclaiming tones which are normally employed to indicate that the

information is unshared, hence enlarging common ground (Cheng, Greaves, & Warren, 2008). This wide variety in tones further suggests that there is no predictable association between a specific DM and an assigned tone. Instead, tone choice is, in many cases, related to the ongoing activity. Such variation is also crucial in establishing rapport between interactants (Pickering, 2010) and signalling interest or excitement in the discussions (Pennington, 1996; Romero-Trillo, 2012). The fact that some DM can be realised by different tones poses the question of how the perception of functions varies in relation to the prosodic features? The following section reflects the role of prosody in defining different functions of DM.

The analysis also demonstrates that the same marker can be produced with various intonation contours which signals that it can have varied interactional meanings when produced with distinguishing prosodic realisations. A case in point is the general extender (*or (and) something like that*). Further reflection reveals that there is a difference in tone realisation between the two main types of general extenders: adjunctive and disjunctive. The former (beginning with and) was recognised with a falling tone in all its instances. In this case, it might imply that there is more to be said on a certain issue, thus indexing shared knowledge or experience. Romero-trillo (2015b, p. 55) refers to this use of general extenders as having an endocentric function, that is "they orient the addressee to previously agreed common ground" with the addresser. In the example below, for instance, the student infers that there are several more words that can collocate with the verb *lift* while only giving one example "something heavy":

1. St1: so you can use it like for something heavy so yeah uh
2. *and something like that↓*

On the other hand, disjunctive form (beginning with or) is often realised with rising tone which could probably signals 'there are alternatives', with consequent implications for the speaker's projected need to be accurate or specific (Cheshire, 2007, p. 158). An example of this is presented below in which the student clearly asks the supervisor to consider alternative options to his opinion, using a rising tone with the tonic on the head noun (that):

1. ST1: so should I change the meaning to the meaning Sense she
2. was telling me even though when I (was checking
3. SP1: what was) the meaning sense she was telling you?
4. ST1: uh like umm some fruits went off or something like tha:t↑

These differences suggest that tone contour could be a robust cue in distinguishing between the two types of general extender (Overstreet, 2005; Cheshire, 2007). This is in consistence with Dehé and Wichmann (2010) who found that the prosodic patterns could reflect different functions of *I think,* and *I believe.* Consequently, it is plausible to argue that the multifunctionality of DMs could possibly be disambiguated by analysing their prosodic features (Sohn & Kim, 2014) which contribute to a deeper understanding in the interpretation of DMs.

4.3.2 Position of DMs and tone choice

Following Romero-trillo (2009, p. 213) who argues that "the prosodic analysis of pragmatic markers based on corpora needs to be complemented with the study of their position within the Tone Unit", the turn position of the DMs has also been investigated to

determine if it has any potential effect on the prosody of DMs. The distribution reveals that most instances of DMs that appear in turn-initial positions are recognised with tone 0, 1 and 2. In contrast, the majority of cases of turn-medial DMs have a tendency to occur with tone four which account for 21.6% of the total.

As studies on DMs in turn-initial positions have shown (Beeching & Detges, 2014; Clancy et al., 1996; Tao, 2003), items that occur turn-initially generally serve four functions, i.e. linking to previous discourse (e.g. *well, but, so*), assessing (e.g. *yeah, right*), framing (e.g. *so*), and acknowledging (e.g. *okay*). The relationship between these functions and tone choice could thus be implied.

In contrast, all DMs that occur in turn-final or stand-alone positions are recognised mostly with Tone 2 or Tone 4. This inclination suggests that the positioning of the marker is relevant to its tonal choice. This result, however, contradicts with an earlier study by Cruttenden (1986) who asserts that one of the tonal patterns of most languages is that they tend to have a falling contour in utterance-final position. Given that tone choice is affected by turn position, it becomes necessary to look closely at the same marker in different positions in order to rule out the influence of positioning on its functions. Hence, the examples below illustrate two scenarios of the marker *I mean,* which carry different tones according to its position in the utterance:

1. SP1: But then you are doing it over four weeks, so it is not
2. gonna take the students four(hours
3. ST1: **I mean**)↑ about the piloting

1. ST1: <u>but you know like</u> if we wanna use pictures (.) right (.)
2. uh say about blow and spend uh blow in the meaning sense
3. of spend if we wanna use pictures how can we use pictures
4. for that meaning sense uh **I mean**↘↗ (0.3) uh I don't know
5. SP1: um
6. ST1: it doesn't work right?
7. SP1: (0.3)yeah

In the first example, *I mean* is produced with a rising tone which serve as an elaboration of her prior message. It might additionally be due to the relative tentativeness of a rising tone in the context of overlapping speech when the student overlaps but does not want to be seen to be too demanding. On the other hand, *I mean* in the second example is uttered with a fall-rise tone followed by a short pause which indicated that the student is urging the supervisor to respond to what she has said. In other words, the use of the fall-rise tone allows the student to overtly invite the supervisor to engage in the discussion and hence promote the extent of convergence between each other.

To sum up, this section has revealed that tone choice of DMs does have a strong association with the functional categories of DMs and individual speaker roles. Both students in this study favoured referential tones over the other tones while the supervisors tended to favour a restricted range of proclaiming tones. A further examination of the tonal patterns of DMs shows that the choice of a particular tone rather than another and the position of the marker in the discourse are directly related.

4.3.3 Prosodic properties of DMs and their pragmatic functions

Building on the frequency analysis, the following discussion examines the relationship between tone choice and the communicative functions of DMs.

4.3.3.1 The falling tone

According to Brazil's framework, the falling tone is often used when speakers want to articulate their intentions and opinions in a definite and assured way (Brazil, 1997; Wells, 2006; Gimson, 2001). Based on the observation of the data, three different functions of DMs which carry falling tones are identified. These are signalling finality, seeking affirmation, and indicating contradiction.

1. Finality

Wichmann (2004) relates the use of a falling tone to the notion of closure and finality, which implies that no further action is anticipated. Similarly, most DMs produced with this tone in the current data are used to signal that no further negotiation is expected (Culpeper et al., 2003, p. 1572). The example of *you know* with a falling tone below illustrate this function.

```
1. SP1:   what's going on over here?
2. ST1:   it's just writing the sentence may be
3. SP1:   would (they
4. St1:   but I think) I have uh have t:o you know (.) just dele:te
5.        it(0.2) may be
6. Sp1:   what do you mean?
7. St1:   or should I just leave it for them to write the sentence
8.        because uh you know (.) they might nee:d a space if the
9.        (want to
```

10. Sp1: yeah yeah would they have time (0.3) will they be able
11. to write down the full sentence like this?
12. ST1: I think yeah because this is the only activity
13. they have **you know↓**

On the discourse level, *you know* in this example can be seen as serving an interpersonal function. It is an interpersonal marker that serves as a signal to involve the interlocutor in conversation (Östman, 1981; Erman,2001). The marker also presumes that there is some kind of common knowledge between the two speakers (Fox Tree & Schrock, 2002). However, its prosody with decreasing loudness and a falling pitch, suggests that the marker is used at the structural level, which works as a textual resource aimed at organizing student's intention to close the turn. The 'completeness' of prosody is accompanied by the speaker's mutual gaze (see section 5.4) which is another indicator of trail-off (Pickering, 2012). As Cook (1992) reports that a falling tone can be associated with several turn management functions, the student here uses this tone as a turn exit technique to signal that they are at the end of the turn and that the other speaker has the right to take the next turn.

2. Seeking affirmation

In addition to its use to indicate finality, the falling tone is occasionally used to seek affirmation as in the following example:

1. ST1: The tests are ready the uh activities are ready **so↑** (0.2)
2. SP1: *well I think* it's literary just putting these things
3. out into examples ***so↓*** (1.2)
4. ST1: so (0.4)
5. SP1: ∆»«not too much stuff *I guess*∆-->
6. ST1: yeah all the materials are ready to to show them so2-->
7. uh do you wanna do it ah like in next week-->*

8. Sp1: no ah no I don't feel *like* doing it the next week
9. the week after *maybe*

What is interesting about this example is the occurrence of two instances of *so* at the end of turns, each of which carries a different nuclear tone. While the first one which terminates the student' turn carries a rising tone, the second one uttered with a falling tone which is apparently used to seek the student's confirmation. In this sense, the supervisor expects the student to agree with him.

3. Contradiction

In some cases, the participants gesture their lack of agreement with a falling tone as in the example below:

1. ST1: so should I change the meaning to the meaning sense she was
2. telling me even though when I was (checking
3. SP1: What is) the meaning she was telling you?
4. ST1: uh like umm some fruits went off or something like tha:t↑
5. SP1: Oh ok uh well uh no that's gonna be really
6. low percentages (as well
7. ST1: but It) was mentioned a lot in the dictionaries really
8. SP1: **Yeah well**↓ percentages like frequency in the
9. Languages versus frequency in uh or use in
10. the textbooks and dictionaries Are not always connected

However, the choice of this tone to indicate contradiction was significantly low. As will be explained below, the falling-rising tone was instead a consistent cue that is used to signal disagreement sequences.

4.3.3.2 The rising tone

Most analyses of nuclear tones claimed that the rising tone tends to be used for questions while the falling tone for statements (Bolinger, 1986; Halliday, 1970; Haan, 2002; Gussenhoven, 2005; Stivers & Rossano, 2010). Yet, other studies (e.g. Hirschberg, 2000) have insisted that this classification is not firm since not all types of questions are produced with nuclear rises. According to the current data, Tone 2 has the widest range of functions which are classified into five categories presented below.

1. Openness and incompleteness

The main use of the rising contour in the data has an association with signalling continuity or incompleteness of information. This is particularly the case when the DMs occur in turn-final positions. In the following extract, for instance, the student's utterance is terminated with the token *you know* that indicates a high level of engagement:

1. St1: And I think the extension as well is just ah because
2. they extended for me not for Laura you know↑

The student's use of *you know,* which carries a rising intonation contour, is not meant so much to signal that she believes the supervisor knows the reference utterance, but rather it is used to invite the supervisor to comment, and hence gives the meaning of continuation or incompleteness (Bolinger, 1989; Hirschberg, 2008; Watt, 1990). Many studies on English intonation patterns (Wichmann, 2004; Bolinger, 1989; Culpeper et al., 2003; Pell, 2007) relate the choice of a rising tone to openness. An utterance which is prosodically open may indicate unfinished and continuative utterances, and thus "expresses personal involvement and courteous elicitation" (Bolinger, 1989, p. 47). It also

offers the addressee a chance to reply, the right to disagree and thus interpreted as polite. Example (2) illustrates another instance where rising tones occur at the end of an utterance which is indicated in bold:

1. ST1: uh should I change one of the meanings to the meaning that
2. she told
3. me even though (when I
4. SP1: What is) the meaning she was telling you?
5. ST1: uh like umm some fruits went off or something like tha:t↑

The marker *or something like that* here carries a rising contour on (*that)* in which the vowel is also being lengthened and stressed. Figure (4.3) demonstrates its waveform obtained with Praat.

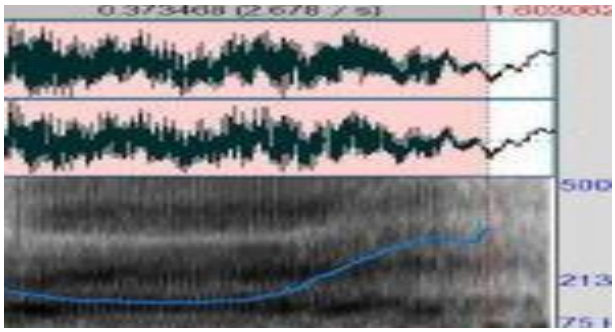


Figure 4. 3: Screenshot of a Praat window showing rising pitch on "that"

As can be seen in the figure, the pitch curve shows a rise at the end of the marker. According to Voilmi and Wiklund (2013) and Deterding and Salbrina (2016), this particular type of tone at the end of turns typically encourages the interlocutor to respond. Kaimaki's (2011) analysis of *oh really* in news receipts in conversations presented similar findings. She found that the production of the cluster with a rising intonation tends to be recurrently followed by subsequent expansion by the next speaker.

2. Politeness

Many researchers (e.g. Culpeper et al., 2003; Ohala, 1984; Válková, 2004) believe that politeness is mostly conveyed through prosodic choices. As stated by Pell (2007, p. 70) "utterances with high/rising pitch tend to be perceived as politer than those with a falling contour". The following example shows how the utilisation of rising tones contributes to the maintenance of a polite relationship between the supervisors and students:

1. ST2: uh (0.2 *I mean* (0.1) the book about item
2. ana analysis I haven't checked it really

In addition to serving a grounding function, the student intends, through the rising tone of *I mean* to make the mitigation of the utterance lessen (Voilmi & Wiklund, 2013). The student wants to pinpoint that she did not read the book that was mentioned by the supervisor in the previous meeting. Since it is very sensitive and it can impose on her knowledge state, she employs this particular tone to display overtones of politeness (Ambady, 2003, p. 434). Without using this compound of markers (uh+ I mean), the conversation above will change its politeness level (i.e. I did not read it). The student further separates *I mean* from the rest of the utterance in order to emphasise the rewording or the previous utterance or to clarify it.

3. Epistemic stance of uncertainty

As the following analysis in chapter five will show, DMs can convey different levels of certainty. In the following example, this function is enriched by the associated prosodic realisation.

1. ST2: *I don't know* uh *I mean* this part I feel it's *like*
2. SP2: hmm
3. ST2: uh part of this part is like repetition of the
4. Previous section

Through the insertion of different DMs before his main utterance (*I don't know*, *I mean*, *like*), the student intends to convey his uncertainty of the truth of the propositions. This is in accord with Givón (1990, p. 823) who states that "in communication to an interlocutor of higher status, one downgrades one's own subjective certainty". The insertion of DMs cluster could also be seen as an indication that ST2 is less comfortable and hesitant in expressing his less knowledgeable state (Tai-Seale et al., 2012; see section 6.3.1 for further details). The link between uncertainty and rising pitch has been indicated by Nilsenova (2006) who argues that rises are a kind of intonational adverb, analogous to a modal structure like "It might be that". If this is applied to the extract above, the utterance could be paraphrased as "this might be a repetition of the previous chapter". Thus, to define a DM as signalling uncertainty, not only its verbal construction but also the understanding of its prosodic features and possibly other nonverbal resources are crucial.

4. Competitive overlaps

Research on overlapping speech usually divides it into two types: *Competitive overlaps* which occur when the next speaker takes the floor hastily while the current speaker still does not finish his/her turn; and *non-competitive overlaps* which refer to "overlapping talk whose purpose is not to compete for speakership with the current speaker" (Stolt, 2008, p. 13). The examination of the prosodic features of these two types shows that the four participants displayed uniform use of rising tones in competitive

overlaps which proposes that intonation might be a very robust conventional signal for interruptions. The example below provides an explanation for this usage.

1. SP2: so you moved from the concentric into the linear and then
2. you justify that the linear is easier to manufacture
3. ST2: Yes because we faced a major problem like I mean how to
4. seal the bounce space
5. SP2: yeah
6. ST2: and the other problem it was I mean because of the uh very
7. high engine it was wobbling (and I could
8. SP2: so so↑ so) ↑I want to see ALL that before the diaphragm
9. structure(.) ALL ↑that needs (.) needs to be explained
10. here↓

The supervisor here takes the floor by the repetition of the marker *so* which is realised with a rising intonation in the three instances. The use of this particular tone performs very well for defining the overlap as being competitive, which is further demonstrated by the stress on *all* and the two instances of *needs*. This suggests that in case a particular marker is used for turn-taking, prosodic resources could potentially be employed in order to display an overlap as competitive or as non-competitive. Chowdhury, Danieli and Riccardi (2015) report similar results as they conclude that prosody is a key feature that distinguishes the two types of overlaps.

5. Repair initiation

Another context in which the rising tone is being used is in the initiation of self-repair. Sidnell (2010, p. 110) defines repair as an "organised set of practices through which participants are able to address and potentially resolve problems of speaking, hearing, or understanding". In total, there are 79 instances of self-repair in the data that are initiated

by DMs, roughly third of them (26 cases) carry rising tones. The extract below shows an example of *I mean* being produced with a rising tone to initiate self-repair:

1. ST2: then I take uh *I mean*↑ I took all the calculation
2. to another part which I called it engine structure
3. SP2: right so you brought all those bellow calculations
4. under the structure

The interplay between self-initiated repair and changes in intonation contour has long been underlined in the literature (e.g. Cutler, 1983; Goffman, 1981; Stivers, 2005). This feature is described by Plug (2014, p. 82) along an "upgrading–downgrading continuum". Similarly, the notion of abrupt-joins introduced by Local and Walker (2004) takes into account this relationship between the two as they observed a rise in pitch and loudness when initiating the second turn. Further examples of DMs used in initiating self-repair are presented in the subsequent chapters.

4.3.3.3 The level Tone

According to Brazil's framework (1997), the level tone has little communicative value which indicated the speakers' neutrality or lack of involvement. Therefore, it comes as no surprise that the selections of this tone in the current data is comparatively infrequent as the setting is highly interactive. In consistence with Collins and Mees's results (2003), DMs that are produced with a level tone seem to refer to speakers' potential lack of interest in the product while other components of the utterance are being emphasised or focused (van Heuven, 1994).

The analysis further reveals that there are two main contexts in which the speakers favour a level tone. The first context is met when there is a collocation of DMs and the second context is when the marker has a cognitive function of verbal planning. In the first case, one of the markers usually occur with level tones while an accompanying marker carries the prosodic realisation (Stenstrom, 1995). For instance, in the following excerpt (illustrated in figure 4.4), there is only one intonation prominence occurring on *I don't know* while *I mean* is not given any special emphasis and thus is uttered by a level tone

1. ST2: I don't know (0.1) I mean uh this part I feel it's like
2. SP2: hmm
3. ST2: uh part of this part is like a repetition of the
4. previous section
5. SP2: well no ah

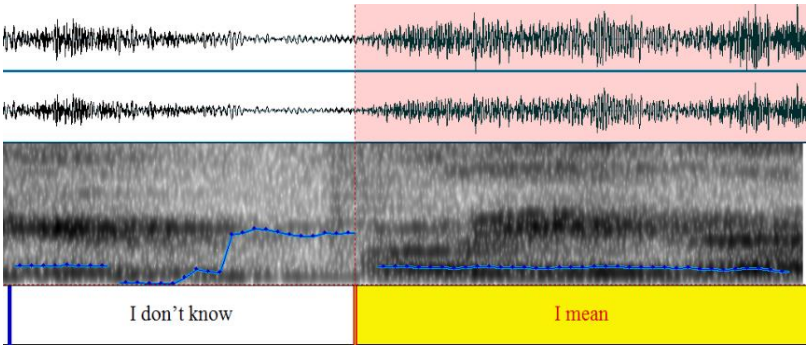


Figure 4. 4: Screenshot of a Praat window showing level pitch on I mean

What receives the pitch contour in the excerpt above is the last syllable of the marker '*I don't know'* which was realised with a rising tone. This could thus be interpreted as indicating less presumed certainty in the information clarified which further designates that the choice of which marker to be stressed in a cluster is largely influenced by the type of discourse and subject matter being discussed.

4.3.3.4 The fall-rise tone

As shown in Table 4.5 above, tone four predominantly represents the second most frequent nuclear tones of all instances of DMs under investigation, comprising 18.9% of all contours. The three salient functions of this tone are illustrated with examples below.

1. Common ground and Convergence

Swan (2005, p. 55) states that "a fall-rise sound is common in convergent requests and invitations". By choosing this tone, the speaker offers a chance to the addressee to comment on, agree or disagree with his utterance. Accordingly, this tone could also express the speakers' tentativeness and hesitancy about what they say. Speakers also use the fall-rise when they "make a statement but at the same time, imply something more" (Wells, 2006, p. 30). This is clearly represented in the following extract.

1. ST1: even with the different meanings, because we almost teach
2. them hot with cold white and black and, **You know** ↘↗
3. SP1: I know it's not right, though

The occurrence of *you know* with a fall-rise tone is to be understood as oriented towards the addressee as it expresses the speakers' attitude in a more involved mode. The employment of such a tone could also be interpreted as an attempt to reduce social distance and signal rapport between the speakers by engaging the hearer in the utterance through the process of sharing common knowledge. Similar results are found in Pickering's study (2001) in which he analyses teacher-student interactions where teachers consistently use fall-rising tone for the purposes of promoting social convergence. This is also in accord with Pillet-Shore (2012) who found that a fall-rising tone used in producing

greetings indicates more interactional effort than level or falling tones and hence it is regarded as more engaging.

2. Mitigating disagreement

A great body of research on agreement/disagreement sequences concentrates on the lexical and syntactic features (Romero-Trillo, 2012). However, disagreement options may also be expressed by prosodic features (Ogden, 2006). Szczepek Reed (2006; 2010; 2012) introduces the term prosodic matching "in which participants repeat one or more prosodic features used by an immediately previous speaker" (2012, p. 19). He further claims that this strategy might co-occur for socially interactive purposes such as mitigating disagreement and promoting social convergence. This use of the fall-rise tone is presented in the following extract.

1. Sp1: you need to give them examples but I don't think that
2. you have to give them the Arabic translation
3. St1: Really uh ***I mean***↘↗ it is hard for them without er the
4. Arabic translation

The markers *I mean* is used as a prefacer for disagreement, which is carefully mitigated against confrontation through the employment of fall-rise tone (Lai, 2012; Leech & Svartvik, 2002). This "prosodic alignment" functions as "an iconic representation of the non-matching of opinions between two participants" (Szczepek Reed, 2006, p. 77).

3. Non-competitive overlap

Unlike the rising tone explained above, which designates dominance or competitive overlap, the analysis of instances of DMs with fall-rise tone suggests its usage is non-competitive in nature, as in the following example:

1. **ST2:** just uh I am wondering honestly if it is worth
2. **SP2:** Yeah,
3. **ST2:** but sometimes if it doesn't (worth then
4. **SP2:** I think) What is uh I mean what what do you want to gain
5. from that one. That's you know, that's what you want to
6. ask yourself Well, how is it going to benefit me?

In this example, the supervisor initiates an overlap with *I think* signalling out his disagreement. It could be argued here that there were two factors that made this overlapping instance non-competitive with respect to turn-taking. First, the insertion of *you know at line 5* has a hearer-oriented quality in that it serves to convey to the hearer that the speaker is avoiding an unequivocal stance and a fully committed statement and that he seeks probably to link up with what the student has said. Second, the fact that *I think* is produced with a fall-rise pitch contour appears to show that it did not intend to handicap the current speaker's undertaking. The absence of the prosodic combination "high pitch and increased loudness" that French and Local (1983, p. 21–28) consider to be a distinctive feature of turn-competitive incoming seems to contribute to this interpretation. Although the relationship between student and supervisor is said to be asymmetric in nature (Borders, 1991), the frequent use of this tone by both participants indicates their orientation towards co-operating and "building their interactive framework (House, 2009, p. 136)

4.3.3.5 The rise-fall Tone

While being infrequent with a limited usage (Wells, 2006; práce, 2010), the selection of the rise-fall tone in the current data could be identified as 'participant-specific' (Brazil, 1985, p. 129) as its use is mainly restricted to the two supervisors. This tone was mostly applied to signal epistemic authority and dominance. Epistemic authority refers to "whom in the interaction has the power to drive and evaluate how knowledge is constructed, as well as proposing and evaluating ideas" (Suarez, 2016, p. 9). The following example shows how the supervisor asserts his epistemic authority in the negotiations of knowledge.

1. ST1: I couldn't use ah like ah change those three
2. eight ah thirty-eight items (I mean
3. SP1: no↓ (0.1) *I mean* ↗↘go and look at them again and see∆»«
4. if there is anything you can tide it up see what∆-->
5. you can do, but I would not make too many changes.

Here, the supervisor interrupts the student in the midst of her discussion by offering a piece of advice that is directly linked to the student's statement. This action is referred to by Damsa et al. (2010) as a regulative action. He initiates his overlap with a negation which was uttered with a falling intonation and high volume and might infer a potential problem of acceptability (Svennevig, 2008). When the supervisor responds in this way to the student's utterance, he seizes the epistemic rights that accrue to his position (Raymond & Heritage, 2006). He then pursues with the marker *I mean* with a rise-fall tone which further signals that he has the institutional right to epistemic authority as he positions himself as leading the epistemic work (See section 6.4.1 for more details). The

verbal design of the overlapping talk together with the choice of a rise-fall tone is employed to negotiate epistemic positions (Kääntä, 2014).

To sum up, it seems plausible to conclude that the prosody of DMs is primarily interactive, which displays sensitivity to different interactional and attitudinal requirements (Bolinger, 1986). This lends support to Couper Kuhlen and Selting's proposal (1996) that the main function of intonation is to contextualise the use of language in a particular situation and to accomplish interactional goals. In addition, the rare occurrences of the rise-fall tone means that in effect, the assertion of dominance and authority through the participants' tone choice is essentially infrequent in the current data.

4.4 Stage 3: DMs and the co-occurrences of embodied resources

This section presents the total number and types of embodied resources that cooccur with DMs in the data. As stated earlier, interlocutors often use both auditory and visual cues which are extremely important for conveying the message to the listener and for the full interpretation of interactions (Sorjonen & Raevaara, 2014; Streeck et al., 2011; Mondada, 2014a). The concurrent production of gestures with speech is referred to as co-verbal, suggesting that they are closely related to the speech they accompany.

However, this analytical section is kept short by focusing mainly on frequency analysis and types of embodies practices used. More detailed discussions about the way participants use coverbal gestures and their roles in meaning-making, and the disambiguation of DMs' functions will be offered in the next two chapters.

4.4.1 Frequency analysis

The table below illustrates the total number of co-occurring bodily resources as employed by each participant.

Table 4. 6: Distribution of types of coverbal gestures across participants

type of embodied actic	Form	Pair 1		Pair 2	
		ST1	SP1	ST2	SP2
Hand movement	Iconic	3	0	0	0
	Metaphoric	3	4	3	2
	Deictic	0	2	0	1
	Beat-like	7	11	9	7
	Recurrent	34	35	25	32
Total	178	47	52	37	42
Gaze directions	Eye contact	10	11	8	9
	To the note	4	4	3	3
	To the screen	2	5	5	6
	Looks up	4	2	3	2
	Looks down	2	3	4	2
	Other	5	6	2	4
Total	109	27	31	25	26
Body posture	Towards Lean	6	7	5	7
	Away Lean	0	2	0	4
	Other leaning	3	2	2	1
Total	39	9	11	7	12
Head movement	Tilting	5	6	4	5
	Nod	1	2	1	1
	Jerk	0	0	0	0
	Shake	0	1	1	0
Total	27	6	9	6	6
Grand total	353	89	103	75	86

Overall, the four participants use coverbal gestures 353 times which means that 20.1% of the total number of DMs are conveyed multimodally. The most common type of coverbal gestures is hand movements which constitute 56.3% of the whole multimodal cues, followed by gaze orientations (27.4%). Among these, 189 (53.6%) are performed by the two supervisors and 164 (46.4%) by the students. The majority of these gestures are found to synchronise with their associated DMs or in some cases precede the DMs by 0.2-0.6 seconds. Specifically, the five markers that show recurrent co-occurrence with multimodal cues are *I think*, *so*, *or(and) something like that, I mean* and *honestly*.

Additionally, the table reveals that referential gestures (i.e. iconic and deictic) appear less frequently with DMs which propose that there is not any systemic link between them and different functions of DMs. The reason for this infrequent occurrence may be due to the fact that iconic and deictic gestures are used to convey core semantic information, while DMs typically carry pragmatic values (Cerrato, 2013).

4.4.2 Identifying gestures' patterns and functions

This section provides a brief overview of the type of recurrent coverbal gestures that have a stable form-meaning association with DMs. It is worth mentioning here that most of the illustrative pictures provided throughout the thesis are presented using sequential frame shots which cover up to 7-second period (Bavelas Gerwing & Healing, 2014). This format may help the reader understand how these gestures actually took place, and hence urge them to "act out the examples in order to experience the single coordinated action of motor–speech synchrony that the examples are intended to show" (McNeill, 1985, p. 352).

4.4.2.1 Hand movements

1. The throwing-away gesture

ST1 shows a tendency to perform a particular type of hand gesture which co-occurs with *or something like that* in 9 instances (figure 4.5). It is performed by holding the right hand to the side with the palm open and wagging the arm and fingers backwards. Bressem and Müller (2014; 2017), Bressem, Müller and Fricke (2010), Müller, Bressem and Ladewig (2013), Montes (2003) and Tessendorf (2014, 2016) have all documented a similar hand gesture which is frequently used in everyday German and Spanish communication. They refer to it as the 'away gesture' family which involve four forms: throwing away, holding away, sweeping away and brushing away gestures. These four gestures differ in their underlying action, but all of them share the same intended effect (Tessendorf, 2016).



Figure 4. 5: The throwing- away gesture

2. The palm-side epistemic gesture

Another recurring hand movement that has been used by ST2 and SP2 and found to co-occur 13 times with different DMs is the side-palms gesture (figure 4.6) which is

performed by placing one or the two arms on the desk in vertically parallel position as though in a chopping motion with the palms open and fingers closed.



Figure 4. 6: the side-palms gesture

3. The ring gestures

This hand gesture is used specifically by the two supervisors in 14 instances which is performed by placing the thumb and forefinger of the right hand in a vertically parallel position while the other three fingers close to the palm. Previous research (i.e. Kendon, 1980) has explored a similar movement pattern of the ring gesturing which is termed the *precision grip* where the hand acts as if grasping something and presenting it and its function is to highlight discourse in respect of information structure and to indicate focus (Lempert, 2011; Streeck, 2009; Winter, Perlman & Matlock, 2013). Most instances of this gesture are found to co-occur with the markers *so* and *really.* A few variations of this gesture in terms of location and direction can also be distinguished (figure 4.7). While the majority of this gesture was performed using a single hand, there are four cases where the left hand is involved in its production.



Figure 4. 7: the ring gesture

4. Palm-up open hand gesture

This type of hand gesture (also known as the Open Hand Supine) co-occurs with DMs in 8 instances. It is typically performed with opening the hand with an upward palm that is directed towards the speaker (figure 4.8). The main pragmatic meaning of this hand gesture is often related to offering, clarifying or listing (Calbris, 2011; Kendon, 2004; Streeck, 2009)



Figure 4. 8: the palm-up open hand gesture

4.4.2.2 Gaze and facial movements

As with hand movements, co-verbal gaze orientations are actively employed in the interactions which found to serve three main functions: regulatory, cognitive and mitigating.

1. Regulator

The first significant function of eye gaze as identified from the data is to control the floor and regulate the interaction and play an important part in the projection of turns (Kendon 2004). Consider the following example:

1. ST2: I managed to increase this chapter from uh say
2. slightly more than 5 thousand to eleven uh eleven thousand
3. words (.)
4. SP2: yeah (0.4) all right (so you
5. ST2: and but) honestly, I (.) I did some changes on the
6. eh (0.6) I mean eh (0.6) in terms of the organisations of
7. the of (the
8. SP2: (The chapter
9. ST2: Yeah

SP2, who maintains eye-contact with the student from the beginning of his turn, anticipates the next TRP which was projected by the short micro-pause at the end of his utterance (line 3). As he takes the floor and starts his turn, the student interrupted with an accelerated turn-beginning. Prior to the overlap, the students first raised his eyebrows and then looked sideways. This is consistent with Cavé et al.'s (1996) and Flecha-García's (2010) findings, which found that eyebrow movements are predicted to occur more frequently at the beginning of a new speaking turn. Both eyebrow movement and averted gaze (figure 4.9) are used by the student in order to take the turn before the verbal DM (*and but*) is uttered. In this case, gaze withdrawal emphasises the function of the DM as an interruptive device within the utterance and at the same time, to a certain extent, it adds meaning to their communicative message in turn management.



Figure 4. 9: Gaze movements and turn management

2. Cognitive functions

While gaze aversion in the previous example comes from the regulation of turn-management, the break in eye contact in some other sequences signal a current cognitive process which reflects complex thought. The following episode shows an instance of this function.

1. **ST1:** If I can manage to find uh find an uh another uh **I mean**
2. another person to do it for me, it's fine but
3. **SP1** even if you're just doing the last ones, the ones you've
4. changed.

In this sequence, the student is trying to recall the word person. She employs the marker *I mean* while simultaneously averting her gaze and then closing her eyes in an indication of internal mental states (Lee et al., 1998).



Figure 4. 10: Averted eye occurs with I mean

3. Mitigating functions

The third function of coverbal gaze is as a mitigation sign used in episodes of giving feedback with equivocation as in the following extract.

1. SP2: The other thing I noticed is your references are not strong.
2. **So not too many** references in Chapter 4
3. ST2: no I added so many references
4. SP2: oh really
5. ST2: about about twenty references I think



Figure 4.11: everted gaze (SP2)

At the beginning of this exchange, SP2 was gazing intently at the student. Later, when he initiates his so-prefaced utterance (line 2), he temporarily shifts his gaze and head orientation away from ST2 and orients them toward a sheet of paper placed on the right-hand side of the table. On uttering ‘‘in chapter 4”, he moves his gaze away from the sheet and reoriented it towards the student in a clear demonstration of recipiency and availability to listen to the student’s talk. His hands still carry out the same movements throughout the whole exchange.

Gaze orientations thus seem to serve an expressive function (Kendon, 1967), whereby participants regulate the level of emotionality and arousal in the interaction. According to Kendon (1976, p. 48), the expressive function of gaze concerns the speaker’s need for affiliation, as mutual gaze appears to increase in affiliative and cooperative interactions.

It could be concluded then that the current supervision sessions are more collaborative in nature. This is different, for instance, when looking at other institutional discourses such as doctor-patient interactions. As Robinson (1998) has shown, because doctor-patient relationships are inherently asymmetrical, doctors orient their gaze away from their patients to indicate disengagement with patient-initiated utterances that are not treated as being relevant to the actions that doctors are engaged in at the time of the talk. The results also lend supports to the suggestions proposed by Kendrick and Holler (2017) and Kidwell (2006) who similarly suggest that the orientation of coverbal gaze serve expressive functions that are associated with the construction of socially preferred and dispreferred actions

4.5 Concluding remarks

This chapter presented a quantitative analysis of DMs and recurrent accompanying gestures. The results reported above reveal that DMs are widely used in the current data although their distributions are rather uneven across the four participants which consolidates the findings reached in previous studies (Lam, 2009a; Pichler, 2010; Pichler & Hesson, 2016). The analysis also uncovers some differences between the two speaker groups with the markers being more frequent in the speech of the two supervisors, while broader in range and functions in students' speech. These variations suggest that the speaker's role might be a determining factor that influence the use of DMs.

With regard to co-verbal gaze orientations, the analysis has shown that their use constitutes a crucial part of the regularised contingencies of interaction which are used by students and supervisors to carry out very different tasks, from organizing interaction to the expression of stance. The analysis of prosodic features also indicates that the positioning of DMs at turn-level appears to have a vital influence on the interpretation of their functions.

Despite laying an informative foundation for further multimodal investigations, frequency alone is insufficient to reveal the full picture of language use (Holmes, 1985). As convincedly argued by O'Keeffe, Clancy and Adolphs (2011, p. 11) "a mere frequency-based list of continuous sequences is limited in its explanatory power". Thus, the subsequent chapters provide qualitative insight into the ways in which students and supervisors make use of DMs to achieve different interactional practices. In each extract

presented, all the DMs used, along with co-occurring gestures, will be analysed and discussed in relation to the contextual aspects of the discourse.

Chapter 5: Supervisory discourse in an English studies domain: Analysis of case study 1

5.1 Introduction

The preceding chapter has examined DMs from a CL perspective and identified key differences in the distribution and functional categories of the items and their accompanying gestures, not only with respect to the institutional role of the participants (Supervisor vs Student) but also in the interactions across the two cases. Yet, it is widely recognised that the meaning of DMs is principally complex and context-sensitive which might not lend itself to analysis by merely applying decontextualised and top-down categorisation approaches (Fuller, 2003; Pichler & Hesson, 2016; Schleef, 2008; Verdonik, 2015; Verdonik et al., 2009).

Adopting a variational perspective (Aijmer, 2013), the aim of this chapter (and the following ones) is to circumvent this issue by further contextualising DMs in the view of the participants' institutional role, relationship and the goal-orientation of the setting under study. The results of such analysis might have the potential of triangulating the data sources (Creswell & Miller, 2000), enhancing the ecological validity of the data (Bryman, 2016) and achieving integration in data analysis (Bazeley, 2009).

This chapter takes as a focal point the dyadic interactions between STUDENT1-SUPERVISOR1 (ST1-SP1). As mentioned earlier (Chapter 3, 3.3.1), the data for these sessions were collected at the School of English and during the first year of the doctoral

programme. The general focus of the meetings was on developing the methodology, finalising the DCT (Discourse-Completion Task) and the activities to be used for the main study which is intended to examine "*the polysemy of single-word verbs and phrasal verbs"*. Based on detailed analyses of a number of extracts with an inspection of the relevant discourse contexts, the chapter will demonstrate how prosodic and nonverbal properties contribute to the disambiguation and understanding of the interactional functions of DMs.

The following sections will firstly draw attention to the salient functions of the most frequently used DMs by ST1 and SP1, respectively. As doctoral supervision meetings are seen by many as a type of institutional discourse that is categorised by specific goals and academic roles and responsibility assigned to each participant (Drew & Heritage, 1992;), section 5.3 will then highlight the functions of DMs within the four types of speech-exchange systems around which the institutional relations pivot, namely *organisational talk*, *instructional talk*, *argumentative talk* and *discursive talk* (O'Keeffe and Walsh, 2012, refer to Chapter 3. 3.3.3). The last section will provide a summary of the results.

5.2 DMs in Student 1's speech

5.2.1 You know

You know occurs 83 times in ST1's speech which accounts for 39% of the instances of this phrase in the whole data. Several studies have documented the marker as highly multifunctional, operating in more than one level of discourse (Aijmer, 2002; Buysse, 2012; Fox Tree, 2007; Fox Tree & Schrock, 2002; Müller, 2005; Polat, 2011; Schiffrin, 1987; Yang,

2014). For instance, in her study of DMs used by L1 (American) and L2 (German) speakers, Müller (2005, p. 147) assigns ten functions to *you know* which makes it "one of the most versatile and notoriously difficult markers to describe". Fraser (1988) concludes that the various functions of the marker arguably emerge from a core sense which bears a resemblance to its literal meaning (see also Östman, 1981; Jucker & Ziv, 1998; Schourup, 1985).

Its core function is then to attend to the addressee by projecting the assumption that "knowledge is shared" or checking "that the listener is following" (Carter & McCarthy, 2006, p. 221). Likewise, Fox Tree and Schrock (2002) highlight the interpersonal use of *you know* and suggest that it could convey both positive and negative politeness and other functions related to repair. *You know,* can additionally function at the textual level by organising the discourse and managing turns to make discourse more coherent (Erman, 2001; Landgrebe, 2012; Stubbe & Holmes, 1995). It could also be employed as a filler to provide additional planning time (Asmuß, 2011; Holmes, 1986). Other studies (e.g. Beeching, 2016; Croucher, 2004; Koczogh et al., 2011; Rezaee et al., 2015; Ostman, 1983) focused on the use of the marker in terms of gender differences and found variances in the overall distribution and functions.

In terms of the current data, the three main functions of *you know* as used by ST1 are presented below.

5.2.1.1 *addressee-oriented*

Thirty-six tokens of *you know* (43%) are used as addressee-oriented markers that express attitude in a more involved mode. *You know* at this level is used to reduce social distance and signal rapport between the speakers through the process of sharing common knowledge and indicating intersubjectivity (Gillespie & Cornish 2010; Heritage, 2007; Lim, 2011). Two excerpts are given below to exemplify this meaning:

1. ST1: *you know* ↘↗ what after I wrote or made all the designs and
2. tests and whatever (0.3) and when I was writing the abstract
3. and using my literature review (0.2)
4. SP1: yeah
5. ST1: I found out that most of the writing there is not relevant
6. to what I (did
7. SP1: yeah) yeah that's because you wrote the literature review
8. and then you did the design after
9. ST1: yeah so yeah it changed a lot

In this example, as in many in the data, *you know* at the beginning of the turn serves dual interpersonal and textual functions. Prior to this, the supervisor was giving advice concerning the conference abstract. The student then moves to talk about the literature review and introduces this topic shift with *you know,* which helps structure the discourse (Müller, 2005; Buysse, 2017). At the same time, its function could be interpreted as an attempt to establish intimacy and shared attitudes with the supervisor by signalling that this topic is familiar to both of them, and hence invite the supervisor to display his stance (Asmuß, 2011). Put differently, the presence of *you know* identifies the utterance as a shared belief and signal that common ground is being negotiated

At line (7), the supervisor expresses his affiliation with the student with the overlapped *yeah,* which indicates that he shares the same stance. He additionally acknowledges the student's utterance by backing it up with some sort of validation.

While in the former instance *you know* occurs in turn-initial position, in the following extract, the marker is used turn-internally and serves an analogous function.

1. St1: I had one student, uh and I was uh just thinking that
2. *you know* she's gonna be like my students there
3. SP1: um
4. ST1: and she got like 38 items correct
5. SP1: out of?
6. ST1: 144
7. SP1: oh 144 that's almost perfect if you get that result
8. in your pre-test uh that's an interesting finding in
9. its own right?

What is revealed from the annotation and tagging of *you know* is that most instances of the marker are delivered without any distinguishable accompanying gesture. Co-verbal signals could then be assumed unrelated to the use of *you know* in these specific examples. In terms of tones, an examination of the intonation contours of all instances of you know revealed that 62 instances of the marker (roughly 74%) are consistently recognised with high volume, and rising intonation (figure 5.1) which suggests that the intonational characteristic of you know in the current data is category-dependent, in that "markers of a category share similar intonational patterns" (Kawamori et al., 1996, p. 98).

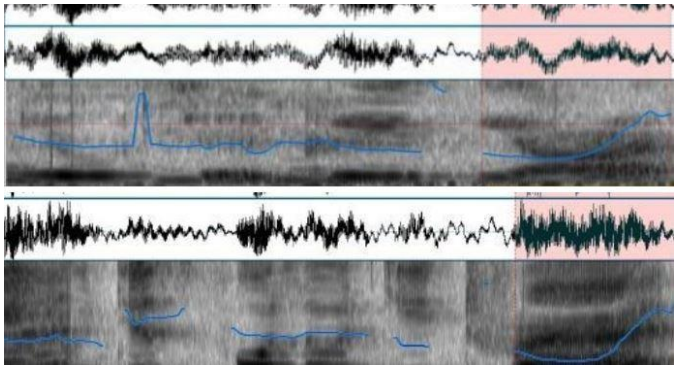


Figure 5. 1: waveform of 'you know' with a rising tone

Another prosodic aspect of *You know* is that it has a short duration in all instances (av. 0.124 ms). One interpretation which may be suited to this case is offered by Yang (2010) and Wang (2017), who both investigated the Chinese marker *ranhou* "then" and observe that when the marker serves an interpersonal function, it tends to have short duration because "there is little cognitive difficulty in presenting succeeding ideas" (Wang, 2017, p. 59). However, this result is in contrast with Romero-Trillo (2015, p. 136) who found that most instances of *you know* are realised with a falling tone on the second element. Yet, *you know* in his data appears only four times which are restricted to turn-initial position serving "a cognitive punting pole that helps the arrival of the forthcoming semantic content'" (p. 118).

As explained in the previous chapter (4.3.3.2), the rising tone has long been described as a cooperative referring tone that has a strong relation with common background and convergence (Brazil et al., 1980; Brazil, 1985). More recently, Mat Nayan and Setter's study (2016) found that speakers use this particular tone to show support and cooperation and highlight important information. Deterding and Salbrina (2013) observed another function of this contour related to indicating uncertainty or interest in discussing a

topic further. Likewise, Romero-Trillo (2019) investigated the use of DMs in the interaction between L1 speakers of English, and between L1 and L2 speakers and observed a more prominent use of tones (2) and (4) in intercultural conversations. With this assumption, the choice of a rising tone over other contours with *you know* is justified.

5.2.1.2 Hedging

The second frequent use of *you know* (29 tokens) is as an epistemic hedge which serves to achieve three functions: stalling for a time, expressing levels of uncertainty or as a disfluent marker (Caffi, 2007; Fraser, 2010). These three sub-functions are principally interchangeable and often linked to politeness (Hei, David, & Kia, 2013). In general, DMs serving this function are usually associated with filled (*um* and *uh*) and unfilled pauses and longer duration (Crible, Degand & Gilquin, 2017). The first example below is an instance of using *you know* to stall for time. The same use of the marker could be seen as having a role in turn management.

1. ST1: The next one is about the matching activity
2. SP1: I did it with a native speaker
3. SP1: um
4. ST1: sometimes I agree with her and sometimes I feel like
5. uh she is uh really be:ing (.) uh *you know* uh(0.2)
6. couscous or something uh (because
7. SP1: Right)

you know in this extract (line 5) occurs turn-internally and operates primarily as a time gaining device. From the fillers that precede and follow, it is evident that the student needs to stall for time probably because she has trouble expressing her ongoing thinking

process about the topic (Macaulay, 2002). In contrast with the previous function, the cognitive use of *you know* here is speaker-centred, which is referred to as "oblique discourse" (Brazil, 1995, p. 244). It could also be interpreted as a signal of disfluent speech as it clusters with other markers of disfluency (Crible, 2017). Interestingly, and in terms of prosodic features, *you know* here is realised with a rising contour while being relatively longer in duration (av.146 ms) than the previous usage. In fact, the average duration of the whole utterance is 7.171 ms, which embodies a relatively long time of delivery. This observation is consistent with the work of Kawamori et al. (1996) and Quimbo et al. (1998) who found that when *you know* and *I think* are used as fillers, they are often recognised with longer duration and have much smaller movement in their pitch contours.

Comparatively, *you know* in the following example has the dual function of expressing uncertainty and disfluency.

1. SP1: What's going on over here?
2. ST1: it's just writing the sentence maybe
3. SP1: Would (they
4. ST1: butI think)I have t:o uh *you know* (.) just dele:te it (0.2)
5. may be
6. SP1: what do you mean?
7. ST1: or should I just leave it for them to write the sentence
8. because uh *you know* (.) they might nee:d a space if they
9. want(to

In this segment, and after a clarification question posed by the supervisor, the student verbalises her answer in uncertain manner using recurrent prolongation (t:o, dele:te), unfilled pauses and various epistemic modalities (*just, I think, maybe*, *might*). In

line (4), the supervisor does not react to the student's answer as expected, instead he asks another question which is inferred by the student as a rejection to her suggestion concerning deleting the space in the answer sheet. Her uncertainty continues and instead of answering the second question, she poses a question herself changing her earlier view.

The marker *you know* here is inserted in the middle of the turn and is equally recognised with a rising contour. Although some studies have shown that hesitation and hedging tend to be expressed multimodally through averted gaze and relevant face expressions (Goodwin & Goodwin, 1996, Kosmala & Morgenstern, 2017; 2019; Schober et al., 2012), no recurrent DM-gesture combinations were found when *you know* serves this function. In all cases above, the student's hands tend to be in rest position while she maintains mutual gaze throughout the whole turns.

5.2.1.3 Confirmation seeker

Besides the two functions outlined above, 18 instances of *you know* are used as a means to seek confirmation, or as Huang (2011, p. 43) refers to it "appealing for acceptance". By applying this marker, the student desires to make sure that the supervisor understands the specific references made and hence evokes his participation in the discourse. Erman (2001, p. 1346) refers to this function as *comprehension-securing* which serves to make sure that "the listener has correctly understood specific references made in the text, usually to people but also to objects and other phenomena". The following extract is an instance in point.

1. SP1: There is a possibility with that sampling method that she
2. just did not land on go off for food

3. ST1: Yeah but it was mentioned a lot I was just checking it was
4. mentioned a lot for food
5. SP1: Or it was the possibility that it wasn't mentioned enough to
6. go ahead (of
7. ST1: And I was really surprised because (.) in all the
8. dictionaries I found this meaning but I didn't find it in the
9. favourite list *you know*↑

The student's use of *you know* which carries a rising intonation contour is not meant so much to signal that she believes the supervisor knows the reference utterance, but instead it is used to seek the supervisor's confirmation and understanding and urges him to accept the information as given and acknowledge the student's idea. It also implies that she needs further confirmation before information can be integrated.

Although a standard description of English intonation would typically assume a falling tone to occur at the end of declarative utterances (Krifka, 2015; Levon, 2016), this case of *you know* in turn-final position is recognised with rising contours which gives the marker the properties of a question tag at the end of the turn and consequently invites the supervisor to take over the turn (Gravano et al., 2008). Heritage (2013, p. 568) associated the use of final rise in a similar context to "try-marking" in which "the speaker is trying to solicit a display of recognition from the recipient". He further emphasises that "if final rise as a practice has an underlying 'semantics', it must be to mobilize response" (p. 569). Jeong (2018) has distinguished between two types of English rising declarative: *assertive rising* in which a slight rise is being used which leads to interpret the utterance as an assertion which is, in some way, tentative or hedged; and *inquisitive rising declaratives* in

which a steep rise is used which leads to interpret the utterance as a biased question. The use of rising intonation with turn-final *you know* in this extract could be considered as belonging to the second type which is used to indicate a particular stance (Warren, 2016) and is highly associated with the dynamics of the context (Malamud & Stephenson, 2015). It is thus the prosodic pattern rather than the marker that signal turn completion (Local et al.; 1985).

To sum up, *you know* as used by ST1 is found to serve three core functions: to mark common ground, as a hedging device and to seek confirmation. While the first function is available both turn-initially and turn-internally, the second function seems to favour middle positions whereas the third one comes predominantly turn-finally. Furthermore, the data analysed above did not show any systematic association between these functions and the co-occurrence of nonverbal resources which holds true across most instances (76 out of 83) of the marker. This means, at least in the case of the current data, that co-verbal gestures have less to do with the functions of *you know*. Additionally, *you know* generally form a separate tone-unit with most cases are recognised with the rising contours.

5.2.2 Gaze orientations and the marker "I don't know"

Even though it was not originally included in Brinton's (1996) taxonomy, the manual search revealed that *I don't know* (IDK) is the second most frequent DM in ST1's data with 54 occurrences. This multi-word expression has been treated as a DM across a variety of languages other than English including Estonian (Keevallik, 2006; 2011; 2016), Finnish (Laury & Helasvuo, 2016), French (Doehler, 2019), German (Helmer et al., 2016), Hebrew (Maschler, 2009; 2017; Maschler & Dori-Hacohen, 2018), Spanish (Rivas & Brown,

2010) and Swedish (Lindström & Karlsson, 2016). IDK has often been examined as being provoked by a previous question or a proposal by another interlocutor (Duden, 2013; Weatherall, 2011).

Its construction form with regard to the vowel quality could vary to be either in reduced (*I dunno*) or full form (Pichler and Hesson 2016). Apart from Doehler's work (2019) and in some prosodic respect, Bybee (2010), Bybee and Scheibman (1999) and Scheibmann (2000), none of the abovementioned studies focused on the multimodal trait of the marker.

In addition to the typical function of disclaiming knowledge, IDK can be employed to serve other interactional functions such as mitigating disagreement (Doehler, 2016), marking uncertainty (Grant, 2010), providing disaligning answers (Keevallik, 2011), as an epistemic hedge device (Weatherall, 2011), and as a response to lack of recipient uptake (Doehler, 2019). Another strand of research has focused on the use of IDK by persons with dementia (Nilsson, 2017; Stickle, 2015) and speakers with Broca's aphasia (Bruns et al., 2018). Both speaker groups use the marker to achieve a variety of communicative functions such as an answer to *wh*-questions, to display memory difficulties, to withdraw from a conversation and to manage sequences of talk.

Most occurrences of IDK in the current data (41 phrases) are produced in reduced forms while 13 tokens are pronounced in its full form. This strong tendency towards prosodic reduction is a clear evidence of grammaticalisation (Maschler, 2017) and it may also indicate that there is no one-to-one correspondence between the prosodic reduction and its functions (Maschler & Dori-Hacohen, 2018). With respect to their functions in ST1's

data, she uses the marker to serve two broad usages: as a way to indicate insufficient knowledge and as a device that projects a non-fitted response.

5.2.1.4 Disclaiming knowledge

Of all instances of IDK, 28 tokens (51%) are employed to show lack of knowledge which retains some trace of its literal meaning. By employing IDK, ST1 principally claims the cognitive state of lacking the necessary knowledge for achieving "the action that is currently due, such as answering or complying" (Keevallik, 2016, p. 117). The same function is identified by Schegloff (1996, p. 62) as the ''prefatory epistemic disclaimer''. The following extract serves as an illustration to this function.

1. ST1: Now about about this DCT uh I think after I finish
2. the piloting we should've just uh like include it in
3. the instruction for the students like use verbs use
4. phrasal verbs
5. SP1: um
6. ST1: because uh and include all the situations
7. for verbs at once and the other for phrasal
8. verbs because again or yeah because again they'll think
9. of phrasal verbs, uh verbs instead of phrasal verbs you
10. know (0.6)
11. SP1: Well (2.3)
12. ST1: Divide them into two like uh (1.8) *I dunno*
13. SP1: Yeah but then you get less and less natural
14. ST1: (.)Yeah

In lines 1-8, the student is giving her suggestion concerning the structure of the DCT. She proposes that it might be better to tell the students in the instructions to use

either verbs or phrasal verbs. She terminated her turn by the involvement marker *you know* which serves a turn-yielding function and followed by a pause in order to elicit a response from the supervisor. At line 11, the supervisor only responds with the stand-alone *well* followed by a long pause implying that he is reluctant to agree with the student and thus, the function of *well* here is as a marker of hesitation.

In order to make sure that the supervisor has correctly understood her idea, she briefly summarises her point and then claims that she does not know. In this example, *IDK* in its reduced form serves as a cognitive marker which displays lack of knowledge and downgrades the certainty of the student's suggestion. By uttering an epistemic disclaimer, the student principally denies having the required knowledge for accomplishing the action that is currently due.

Throughout the whole turn, the student keeps gazing straight at the supervisor (figure 5.2). In the course of the delivery of IDK, the direct gaze is additionally associated with a slight move in the body towards the supervisor implying that the student elicits a response or encourages the supervisor's engagement in the conversation (Davitti, 2013). Relevant to this observation in the work of Rossano (2012) and Stivers and Rossano (2010) who both found that mutual gaze may serve as a signal for eliciting response from the recipients. After IDK, the supervisor immediately initiates his turn with *but* signalling out his disagreement.



Figure 5. 2: coverbal gestures accompanying "I don't know" (example 1)

In addition to its cognitive characteristic, the marker has a hearer-oriented quality as it serves to convey to the supervisor that the student is avoiding an unequivocal stance and a fully committed statement. It implicitly evokes the impression that the conversational floor is, in principle, open. There is thus a connection between the cognitive usage of *IDK* as a disclaimer of knowledge and its role in the organization of sequences. Put differently, the student yields the turn in a way that highlighted her lack of knowledge. The next excerpt shows another case in point.

1. SP1: so (.) the next one is "hit balls"
2. ST1: she said it is weird
3. SP1: is she being weird?
4. ST1: uh?
5. SP1: is she being weird? hahaha
6. ST1: haha
7. SP1: it is NOT hahah why is it weird?
8. ST1: **I** dunno
9. SP1: I go to the golf of course and hit balls
10. ST1: *I dunno*

11. SP1: I play basketball and hit balls

12. ST1: I was surprised as well

15. SP1: no there is nothing wrong with that

16. ST1: and she said something that you're trying to teach the

17. non-native Speakers something that we don't usually use

18. in speaking and uh you make them speak in like

19. non-native haha language uh *I dunno*



Figure 5. 3: coverbal gestures accompanying I don't know (example 2)

In the extract above, IDK occurs three times which are all recognised with phonologically reduced forms. The first two occur as stand-alone markers while the third one comes at a TRP. The formers are both used in a literal sense and provide a non-answer response to an information-seeking question (Stivers & Robinson, 2006). They occur after the supervisor's questions which is presented humorously in order to affiliate with ST1 whilst also providing negative feedback (Looney & Kim, 2018). The third instance is multifunctional and signals, in addition to its literal meaning, the epistemic stance of uncertainty and the management of the sequential unfolding of talk as it calls for the supervisor's response.

Just like the first example, IDK in this extract is prosodically delivered with high volume compared to the surrounding discourse, rising intonation and short duration. The co-occurring embodied conduct is also similar, as the three instances of the marker were associated with the student's gaze towards the supervisor (figure 5.3) and a slight move in body posture which serves as a means of pursuing response (Stivers & Rossano, 2012).

5.2.1.5 *Projecting a non-fitted response*

19 cases of IDK are classified as serving to decrease the socially problematic task of disagreeing with the supervisor, as in the next excerpt.

1. ST1 uh should I change one of the meanings to the meaning
2. that she told me even though when I was (chicking
3. SP1 What is) the meaning she was telling you?
4. ST1 uh like um some fruits went off or something like tha:t↑
5. SP1 Oh ok well (0.5) no that's gonna be rea:lly low
6. percentages as well
7. ST1: (0.7) *I don't know uh* but It was mentioned a lot in
8. the dictionaries really
9. SP1: Yeah well (0.2) percentages like frequency in the
10. languages versus frequency in uh or use in the textbooks
11. and dictionaries are not alway:s connected



Figure 5. 4: coverbal behaviour with I don't know (1)

Before this extract, the student was discussing the comments that she gets from the pilot study regarding different meaning senses of several phrasal verbs included in her study. One of these comments concerning "go off" with the meaning of decomposing or becoming inedible which she did not include. At line (1), she asks the supervisor whether to include this meaning under question. After the supervisor's response which indicates a different point of view, the student seems to disagree with the supervisor. Following a lengthy pause (line 7), ST1 initiates her turn noncommittally by disclaiming knowledge, its collocation with *but* acts as a mitigating device which turns the performance of disagreement from an overtly problematic action into more indirect construction and hence adheres to politeness principles (Keevallik, 2011).

The mitigating meaning of the markers is further reinforced by the fall-rise intonation contour, delay in the response and a markedly averted gaze (figure 5.4). Swan (2005, p. 55) states that "a fall-rise sound is common in convergent requests and invitations". By choosing this tone, ST1 offers a chance to the supervisor to comment on, agree or disagree with his utterance. Accordingly, this tone expresses the speaker's tentativeness and hesitancy about what she says. Thus, the combination of these modes proposes a dispreferred incipient action in an unproblematic manner (Rossano, 2012; Sacks, 1992; Kendrick & Holler, 2017; Tuncer, 2015). Another example of this function is offered in the next excerpt.

1. SP1: all these words work with become
2. ST1: Yeah those are the ones that I found in the corpus really
3. SP1: So why can't your translation be become?
4. ST1: Become uh (.6) *I don't know* but I feel it's weird

translation
SP1: You seem like your translation is a little overly complicated
ST1: No it doesn't mean like uh for for uh in this sentence
SP1: So for Arabic it doesn't work
ST1: no it doesn't uh no
Sp1: OK

The disagreement in this example is about a translation-related issue. The supervisor suggests a translation of the phrasal word "throw out" into an Arabic equivalent to "become" which he believes would be appropriate. This suggestion is indirectly rejected by the student in line (4) by giving a reason which is initiated by IDK. The reason seems to be that such a translation is weird in Arabic. Both speakers seem to reach consensus in the end. Similar, the embodied resources that accompanied this instance of IDK are gaze withdrawal and a rise-fall contour.

In the two examples mentioned above, ST1 seems to hedge her non-fitted response using a combination of DMs (*I don't know but*), hedges (*perhaps*, *maybe) and* fillers along with the incorporation of other nonverbal resources such as long pauses, gaze aversion and the choice of compound intonation. Furthermore, by analysing the temporal synchronization between the marker and its accompanied gaze, delays of 60 ms and 70ms are observed with the gaze being led. In contrast to its tight alignment in the case of disclaiming knowledge, this result indicates an asynchrony between IDK and the associated gaze aversion when occurring in dispreferred turns. An examination of other cases of IDK with similar function signal this consistent pattern.

All in all, the analysis above identifies two distinct functions of IDK and demonstrates that each function rests on a multifaceted interface of both verbal and

nonverbal resources. ST1 uses IDK as a means for disclaiming knowledge which occurs after lack of recipient uptake. This function is often accompanied with ST1 gazing directly at the supervisor, leaning-forward and with rising intonation. The second function of the marker is to mitigate disagreement which is often associated with a preceding averted gaze, a slight head tilt and a fall-rise intonation. Moreover, the results reveal that the marker shows a tendency towards prosodic reduction and hence did not indicate any relationship between the markers' reduction form and any of the functions. Such observations provide initial evidence suggesting the critical role of embodied conduct in the disambiguation of different functions of IDK.

5.2.3 Or something like that: The brushing aside gesture

ST1 shows a tendency to perform the throwing-away gesture (refer back to 4.4.2.1) which co-occurs with *or something like that* in 13 instances. The next extract is a concrete example of this type of this coverbal gesture.

1. Sp1: and you're not doing an Arabic definition
2. St1: no
3. Sp1: why?
4. St1: should we? (0.3) Because it is gonna be in the
5. exam uh a multiple-choice exam (0.4) may be just
6. provide like explanation uh explaining note in
7. the slide *or something like that*



Figure 5. 5: The throwing- away gesture

In the above example, the student and the supervisor were reviewing the teaching material being developed for the pilot study which include teaching new vocabulary. The supervisor asks why she is not providing an Arabic definition. By merely saying why, he sets the terms by which the student should respond (i.e. providing a reason). Interestingly, the student initial response departs from the constraints embodied in the question as she provides a nonconforming response (Raymond, 2006). By asking a question instead she implies her doubt about her decision. Following a brief pause, she then provides her justification for not including the Arabic equivalent.

As a possible way to disambiguate the meaning of the words, she suggests providing short explanation in the slides and terminates her turn with a general extender. The primary function of *or something like that* in the above exchange is thus to signal assumptions of uncertainty (Tagliamonte & Denis, 2016) and suggest that she has just provided one possible way of dealing with the matter and that more could be possible (Overstreet, 2005). As she uttered the marker, she moves her right hand performing the throwing-away gesture (figure 5.5) which may refer to brushing away the other relevant

alternative options that are left out (Müller et al., 2014). As she finishes her turn, she kept gazing at the supervisor in an attempt to search for confirmation which demonstrates her orientation to the supervisor' epistemic authority (Stivers et al., 1997).

5.3 DMs in Supervisor 1's speech

5.3.1 So

As generated from the frequency analysis in chapter 4, *so* occupies the first top ranked marker in the whole data with SP1 producing 123 instances. Earlier research on *so* highlights its multifunctionality with two dominant aspects: a resultative (i.e. causal) function at the semantic and syntactic level, or an inferential function at the discourse level (Blakemore, 2002; Fraser, 1999; O'Keeffe et al., 2007). Other functions of the marker include introducing a new topic (Lam, 2010; Matzen, 2004), getting someone's attention (Bolden, 2009), as a speech act marker (Müller, 2005), to indicate a summary (Schiffrin, 1987), as a stand-alone marker to motivate the listener to elicit the following action (Raymond, 2004), or to indicate the end of turn (Matzen, 2004), managing overlapping units (Local & Walker, 2004; Raymond, 2004) and as a topic-developing marker (Johnson, 2002; Lim 2018). The role of the marker in the speech of L2 learners has also attracted an extensive body of research (e.g. Buysse, 2012; Fung & Carter, 2007, Lim, 2016; Liu, 2017; Sato, 2019; Vickov & Jakupčević, 2017).

With regard to its multimodal characteristic, and to the best of my knowledge the only study that analysed *so* multimodally is that of Ferré (2011) who focuses on its French equivalents 'donc' and 'alors'. He concluded that when the French markers have a concluding function, they tend to have a flat or level contour and mostly preceded by an

unfilled pause while being typically accompanied with adaptors. Matzen (2004, p. 86) offers an acoustic description of the marker and comments that "prosodic features can distinguish multifunctional tokens of *so* from those performing only one function".

In the current data, the three most frequent functions of *so* are: (1) to indicate consequences and mark backgrounded information; (2) to introduce an opinion; and (3) to yield the turn.

5.3.1.1 To indicate consequences

53 tokens of so (37%) are found to serve the referential function of marking a result or indicating consequences. However, this function does not necessarily mean that the episode of discourse or topic of conversation has come to an end; the reason or result of an action can occur in the middle of the talk as in the next examples.

1. ST1: you reminded me(.)shall I participate in that one as well?
2. SP1: EURSLA?
3. ST1: yeah (.) because my next study is if I'm going to do it is
4. gonna be in September so↑
5. Sp1: well (.) there is a strand of teaching there (.) *so* that's
6. that's a **good** thing uh language acquisition and teaching
7. probably not many people doing that unlike corpus stuff(.)
8. *So* it's a **good** opportunity (.) it's a good experience umm
9. you get very good feedback uh it's pretty competitive though

In this segment, the student is inquiring about participating in another conference and she closes her turn with *so* which is delivered with a rising intonation indicating the transition of turns. The supervisor then offers his approval and gives reasons for that. The

marker *so* in line (5) designates a consequence here as what comes after it (`that's a good thing`) is the result of the previous utterance (`there's a strand of teaching there`). He then makes a slight digression by suggesting that most of the abstracts would probably focus on corpus rather than teaching. In line (8), he returns to the same point initiating his turn with *so* which additionally marks the main topic. The two instances of *so* in the supervisor's turns are delivered with no tonicity (tone 0) and with no accompanying gesture. Alternatively, the tonic element in both cases is placed on two occurrences of (*good*). In fact, the choice of tone (0) with *so* is relatively maintained in 79 (out of 123) instances. More examples are presented in the two segments below.

1. ST1: but Marian's study is uh kind of qualitative *so* it's three
2. or four people right

1. SP1: I told you about that book last time, right? The uh
2. Larson-Hall book
3. ST1: um
4. SP1: doing statistics in second language research
5. ST1: yeah
6. SP1: and she has a bit of R in there (.) as well so see what
7. she is doing in R there because because I haven't looked at
8. that book in enough detail

The two instances of *so* above retain its semantic meaning in that they were used internally in order to introduce a new resultative sequence and to "signals the kinds of relations a speaker perceives between different parts of the discourse" (Lenk, 1997, p. 2). As in the first example, all instances of *so* with a resultative function are recognised with tone (0) which signals unmarking prosodic value (Romero-Trillo, 2018, p. 174).

5.3.1.2 Prefacing a question

In addition to marking resultative connections, SP1 also uses *so* (23 tokens) in a sequence-initial position to precede a question that aims to request clarification or provide summary to which he seeks confirmation. Johnson (2002, p. 103) classifies this function as a topic-developer marker under the domain of action structure. Consider the following example which illustrates this function.

1. SP1: *so* in the fav list are there ones that are always
2. splittable?
3. ST1: not all of them uh no but some of (them
4. SP1: no) I mean are there ones that have to be split?
5. ST1: yeah

Here, the supervisor asks a question which elaborates the immediately preceding talk about splitting the phrasal verbs in the study. The preface *so* functions as a topic-developer that structures and reconstructs the main topic. Similarly, in the next extract, the two participants were discussing possible examples for using the verb lift (someone's spirit) with the meaning of making someone happier.

1. ST1: Now for those two is it easy to figure out their meaning
2. SP1: well (.) not a hundred percent easy uh let me see lift uh
3. no and the reason with left to be lifted by a little bit of
4. good news to lift my spirit
5. ST1: I used that but now I want to change the context can I say
6. lift my mood?
7. SP1: improve my mood
8. ST1: hahah oh my god so what?
9. SP1: *so your problem* is always "*lift your spirit*" right
10. ST1: yeah

Although the utterance that follows *so* (line 9) is structured as a statement, it is uttered with a rising intonation which gives it the property of a polar question which highlights or clarifies the same propositional idea of the previous discourse (Müller, 2005, p. 78). In other words, *so* can be seen here as having a rewording function as the utterance that follows it does not posit a new topic, instead it reiterates the main discussion and condenses it (Buysse, 2012). Similarly, the two instances of *so* here do not carry any tonic movement, instead the emphasis is placed on "fav list" and "your problem" respectively.

5.3.1.3 Closing frame marker

The third structural function of *so* (17 tokens) is as a floor-yielding device which occurs either at the end of a turn or as a stand-alone marker. Local and Walker (2004) call it the trailoff-so. Raymond (2004) and Kim (2015) classify this function under the interpersonal category as it prompts action by the recipient. Comparatively, Schiffrin (1987, p. 223) refers to it as *elliptical* since it "does convey a result meaning even if no result follows". An illustrative example of this functions is provided below.

1. ST1: If I add like for example the translation start making loud
2. noise would that affect (really if
3. SP1: I don't) know uh (.) see when you tell me about your
4. translation you tell me in English so it might not make
5. sense in English but it makes sense in Arabic *so*

The main topic in this sequence is about the phrasal verb "bring out" which posed a problem in the pilot study as the translation into Arabic was not clear enough. The student suggests changing the translation from "making loud noise" to "start making loud noise". The supervisor then clarifies his point stating that it's difficult for him to decide as he is not familiar with the Arabic language. He ends his turn with *so* which indicates that he has

nothing to say and that he is willing to give the turn to the student. The fact that *so* is used as a turn giving signal is not only reflected by the use of a falling tone but also by its average duration, which is longer than that of the other two functions.

To sum up, SP1 uses the DM *so* to serve one referential function (a resultative meaning), and two structural functions (prefacing a question and yielding the floor). However, to some extent, an overlap between these functions is also observed. As for the analysis of embodied resources, the result did not display any systematic use of co-verbal gestures which suggests that there is no connection between any type of gestures and these specific functions of *so*. An examination of the intonation contours of the marker reveals that it is typically recognised with a lack of tonicity. The only exception is that it has a falling tone when serving as a closing frame marker. Therefore, as in the case of *you know* above, intonation patterns could be a useful clue which aids in disambiguating the different usages of the marker *so.*

5.3.2 Well

Despite being totally absent from the students' speech, *well* has been used quite often by both supervisors. Generally speaking, the marker is among the most frequent DMs in English and American conversations (Biber et al., 1999; Fuller, 2003) which has been studied extensively both diachronically and synchronically (Lam 2009b, Rühlemann & Hilpert, 2017). In addition to mundane conversation, *well* has received attention in other institutional contexts such as courtroom discourse (Hale, 1999; 2004; Innes, 2010; Tkačuková, 2015), interviews (Fuller, 2003, Jackson & Jones 2012) contrastive analyses (Aijmer & Simon-Vandenbergen, 2003; García Vizcaíno & Martínez-Cabeza, 2005),

storytelling (Norrick, 2001), and translation studies (Aijmer & Altenberg, 2002; Cuenca, 2008; Johansson, 2006; Mattsson, 2009). However, as with most DMs, the analysis of co-occurring embodied constructs of *well* has attracted much less scholarly interest. The only multimodal research available to date is the pilot study conducted by Baiat et al. (2013) which concludes that more multimodal analyses that address this neglect are needed.

In the data currently under investigation, the total occurrence of *well* in ST1's talk is 94 tokens, with most cases occurring in turn-initial position. Building on the adopted functional category, SP1 uses *well* to perform three salient functions: (1) to preface a dispreferred response; (2) to indicate a topic transition; and (3) to initiate self-repair.

5.3.2.1 Prefacing a dispreferred response

In the majority of occurrences (43 tokens), SP1 uses *well* in order to soften disagreement. This function (which is also common across SP2 speech) matches Schiffrin's (1987, p. 103) use of *well* in the participation framework which is used when "an upcoming contribution is not fully consonant with prior coherence options". Other terms used to refer to the same function are dissonance marker (Fraser, 1990), insufficiency marker (Jucker, 1993), attitudinal marker (Aijmer, 2011) and warning particle (Levinson, 2013). Many researchers (e.g. García Vizcaíno & Martínez-Cabeza, 2005, Pulcini & Furiassi, 2004) relate this function to politeness and indicate that it serves to downgrade a claim and mitigate face-threat. In line with Müller (2005) and Aijmer (2011), most instances of *well* serving this function are accompanied with preceding or following filled or unfilled pauses. The following extracts demonstrate the typical environment in which this function occurs.

1. ST1: Should I mention the words, the different meaning and
2. examples uh one example or two examples or because
3. (0.2) you know↑
4. SP1: um
5. ST1: of the expo:ser or whatever↑ (0.7).
6. ST1: *Well*↑(0.2) the key is obviously to be (.) consistent
7. throughout but(0.3) I would sa:y no: to the examples
8. because you are giving examples later in the activities
9. right↑?
10. ST1: (0.2) yeah
11. SP1: and it's one more uh it ends up being one more thing
12. That is exactly the same for the:: for both groups

In this segment (part of which was quoted in Section 5.1.1.3), the student asks a leading polar question which conveys an indirect answer to which she seeks approval. The supervisor seems to realise that his refusal to the student's implied suggestion might encounter an adverse reaction therefore, he initiates his response with *well* (line 6) which indicates his reluctance to move forward (Kendrick & Torreira, 2015, p. 268) and simultaneously alerts the student to anticipate rejection (Heritage, 2015, p. 87). As will be explained in more detail in section (5.3.3), *well* here additionally works to lessen second-hand knowledge of ST1 by a counter-assertion that relies on SP1's own first-hand knowledge (Sacks, 1984). There is thus an overlap between this function and marking delay as the supervisor, to some degree, needs more time to organise his disagreement either because he is reluctant to disagree or he is not sure how to word what he wants to say (Baiat et al., 2013).

What seems to be more at play are the accompanying nonverbal features in this sequence. As shown in figure (5.6), the supervisor averts his gaze as he starts his turn with *well* and his gaze withdrawal continues (albeit in different directions) throughout until he begins to address the student directly '*you are giving*' when he returns to fix his gaze on the student.



Figure 5. 6: Gaze aversion with 'well' (example 1)

In terms of the prosodic aspect, the student terminates her sequence with a rising tone on 'whatever' and a gap of (0.7) and the supervisor initiates his turn choosing the same tone contour. This matching in tones between the two is significant since a rising tone when contradicting a previous speaker may signal a wish to avoid the appearance of overt disagreement that might be inferred from a mismatching tone (Couper-Kuhlen, 1996; Szczepek Reed, 2006). Taken as a whole, this multimodal portrait is an apparent signal to the supervisor's preference to avoid the face threatening situation in which they were involved (Brown & Levinson, 1987). The same interpretation applies to the instances of *well* in the following extract.

1. ST1: so should I change the meaning to the meaning sense she was

2. telling me even though when I was (checking
3. SP1: What is) the meaning she was telling you?
4. ST1: Uh like um some fruits went off or something like tha:t↑
5. SP1: Oh ok *well* uh (0.5) no that's gonna be re:ally low
6. percentages (as well
7. ST1: (0.7) I don't know uh but It was mentioned a lot in the
8. dictionaries really
9. SP1: yeah *Well* (0.2) percentages like frequency in the
10. languages versus frequency in uh or use in the textbooks
11. and dictionaries are not alway:s connected



Figure 5. 7: SP1's gaze aversion with well (example 2)

There are two instances of *well* in this extract (part of which was analysed in Section 5.1.2.2). As an answer to the student's question, the supervisor (line 5) prefaces his turn with a cluster of three markers (*oh ok well*) in order to delay the turn and probably to downtone dispreferred response (Kendrick & Holler, 2017) by showing partial agreement (García Vizcaíno & Martínez-Cabeza, 2005). After the student's turn which is initiated with the marker *but* to convey disagreement, the supervisor continues to rationalise his previous advice and again initiate his turn with *well* followed by a pause which presumably indicates trouble in responding (Kendrick & Torreira, 2015). He similarly produces the same multimodal actions of gaze aversion and rising tone.

However, the withdrawal of gaze this time was very short in duration as it co-occurs only with the marker *well* and then the supervisor quickly gazes back at the student. By focusing on speech-gesture synchrony, gaze withdrawal in the two examples above is observed being closely timed with the accompanying *well*. An investigation into the temporal aspects of all cases of *well* serving this function yielded similar results. This temporal alignment clearly indicate that the two modalities encode more or less the same aspect of pragmatic information (Bergmann et al., 2011) and thus adding prominence and emphasis to the dispreference nature of the turn. This result resonates with Belhiah (2013) who states that an upcoming dispreferred turn is often associated with delay and co-occurrence of gaze aversion.

5.3.2.2 Initiating self- repair

Another frequent function of *well* (23 tokens) is to modify a previous statement in order to make it relevantly more comprehensible to the recipient. This function is thus connected to the interpersonal domain (Jackson & Jones, 2013, p. 28) and the achievement of intersubjectivity and common ground (Clark, 1996; Heritage, 1984; Schegloff, 1992). Aijmer (2013) refers to similar usages of *well* as self-reflexive and claims that it serves a cognitive function of indexing mental activity. The same view is held by Rühlemann (2019), who counts the marker among restart items. Consider the following example.

1. SP1: so, you want them to do more of item analysis rather than
2. right or wrong right?
3. St1: Ok
4. SP1: right and wrong is a good thing you wanna go through and
5. check for right and wrong you also want to think about who

6. your people are
7. ST1: um
8. SP1: er are they high level are they native speakers of English
9. or whatever they should be getting them all right and not
10. having any problems
11. ST1: Yeah
12. SP1: Your low-level learners should be probably getting them
13. all *uh well most of them* wrong (.) at least probably
14. two third of them wrong anyway
15. ST1: Yeah



Figure 5. 8: gaze aversion with well (example 3)

In this extract, the supervisor initiates his self-repair with *well* in which he modifies his utterance by replacing "getting them all" with "*most of them*". This kind of repair modifies the claim by making it less precise (Drew, 2003). As shown in figure (5.8), *well* is accompanied with an averted gaze which makes it oriented to the cognitive rather than the interpersonal domain. It is further realised with a referring rising tone and high volume. Likewise, in the following excerpt, an imprecise claim is being self-repaired using the well-prefaced modification which is realised with a rising tone and accompanied with an averted gaze.

1. SP1: who are the pilot people again uh who are the subjects

2. St1: They are mixed, all of them are Saudis but they are mixed
3. uh there is high level there is low level there is
4. SP1: Alright
5. ST1: Intermediate or whatever
6. SP1: So you want the high level to get more right
7. ST1: Yeah
8. SP1: Now the idea would be that (0.2) *you don't want(0.4)*
9. *well* if it's right you want most of them kind of be
10. higher percentage, right?
11. ST1: Um
12. SP1: And then lower and lower and lower uh if it's wrong you
13. probably wana it to spread across that means all of the
14. distractors are kind of working equally well perhaps



Figure 5. 9: SP1's gaze aversion with well (example 4)

5.3.2.3 Indicating a topic transition

The third function of *well* (16 tokens) is as a textual marker used to preface a transition (or shift) in the topic. This does not necessarily mean shifting to an entirely new

topic that have not been addressed before, but rather a transition to “a subject other than the one which was being discussed immediately prior” (Riou 2017, p. 6). A case in point is the next sequence.

1. ST1: and yeah when I come back from Saudi I’ll get some money
2. SP1: from them
3. SP1: um
4. ST1: because of this journey so I thought that I should spend it
5. (.)uh on some conferences like these not (very
6. SP1: sun glasses
7. ST1: hahah no
8. SP1: new bag (hahah
9. ST1: hahah)
10. ST1 well living in Europe uh triple A is good but living in
11. Europe (.) we can go to EURSLA and this one and bunch of
12. little conferences

Rather than commenting on the student’s discussion about participating in conferences, the supervisor diverges from the main topic in a humorous manner talking about other ways of spending money. He then uses *well* to shift the talk from the off-topic and bring it back to the main topic. Relatively, the *well* utterance here is recognised with a rising tone and accompanied by a mutual gaze. The same patterns occur in the following example.

1. SP1: the female science students uh how do you get so many
2. female science student anyway there’s not that many women
3. going to science?
4. ST1: really?
5. SP1: it’s under-representative for females in science yeah

6. ST1: Ok we have a lot of students going for science
7. SP1: What kind of
8. ST1: biology, medical uh everything I guess uh because for art
9. only you have English only or geography or whatever and
10. it's not interesting for them I guess
11. SP1: *well(.) anyway* you need to know uh you need to be sure and
12. you need to be(0.3) confident in the classroom and (.)
13. diligent in the classroom to make sure that they are doing
14. it properly

The supervisor here uses a combination of two DMs (*well anyway*) for his topic transition. What is interesting here is that each marker is recognised with a different tone. Whereas *well* is delivered with a rising tone which signals a continuation of the previous sequence, *anyway* is recognised with a falling contour. In fact, many topic transitions in the data are structures with a format including DMs collocation with one of the markers carrying the tone unit depending on the context (refer back to chapter 4, 4.2.4).

To summarise, the examples discussed above show that Sp1 uses *well* to serve three main functions: to preface a dispreferred response, to a initiate self-repair and to signal a topic shift. The analysis of co-verbal bodily conduct reveals that the most common type of gesture accompanying the use of *well* is averted gaze (and sometimes a blink) which co-occur exclusively in the domains of self-repair and dispreferred turns. This finding yields a very similar pattern to that of Baiat et al (2013, p. 286) who observed a recurrent presence of averted gaze with *well*. Moreover, the marker is frequently recognised with a rising contour which is the prevailing pattern in most of the examples discussed above no matter what function *well* serves. This constant use might be due to the relative

tentativeness of a rise tone as the supervisor probably does not want to be seen as too demanding, and hence promote the extent of convergence with the student.

5.4 The interactional architecture: contextualising DM use

Adopting the work of O'Keeffe and Walsh (2012, see also, Walsh and O'Keeffe's 2010; Walsh et al. 2011) who propose that spoken interaction in higher educational settings could be categorised into four different types: *organisational talk, instructional talk, argumentative talk,* and *discursive talk*; specific episodes that represent each of these categories are examined in an attempt to highlight how multimodal DMs may contribute to the negotiation of the institutional roles and the various pedagogic goals of the context under discussion. Such an investigation has the potential of augmenting the understanding of how talk is managed.

To unpack the dynamics of interactions in a concrete way and to examine the active participation of all participants, each speech-exchange system is presented in adjacency pairs which includes the First Pair Part (FPP) and the Second Pair Part (SPP). The two turns are commonly related (Schegloff, 1968) as the first utterance entails social preference for a relevant next action by the other speaker (Dutcher, 2018; Stivers 2011).

While also acknowledging that supervisor-student relationship reveals some aspects of power, a notion that remains a robust fundamental supposition in supervision research (Tian & Singhasiri, 2016); the view adopted here supports the belief that doctoral supervisory talk is in principal an actual pedagogic process (Grant, 2008; Wisker et al., 2003; Wisker, 2012). Hence, doctoral students are seen as having "the ability to voice their

opinions and make contributions to the supervisory process" (Tian & Singhasiri, 2016, p. 654). Focusing on power in doctoral supervision, Grant (2001, p. 14) distinguishes between power as structured and unequal" and "power as a relation". In unequal power relationship, supervisors are seen as more powerful and knowledgeable and students as powerless and passive who depend on supervisors to make decisions and provide guidance. On the other hand, power as a relation plainly assumes a productive and dynamic way of exercising power. The current analyses accordingly adopt the latter approach by seeing supervisory sessions as a "creative, challenging, and empowering dialogue" where students are encouraged to take opportunities to explore and discuss their research ideas" (Wisker, 2012, p. 187). Thus, power issues within the present data are negotiated in the course of the current dataset, rather than merely being the basis of the analysis.

5.4.1 Handling feedback practice through persuasion

In the process of PhD research, managing feedback principally lies at the heart of supervisory pedagogy as it is considered the core of the learning experience of doctoral students (Hyland, 2009; Kumar & Stracke, 2007; Wang & Li, 2008) and one of the characteristics of the quality of supervision (Bastrukmen & East 2011). The occurrence of critical feedback is often linked to potential threat to face (Yuan, 2010) which ''jeopardizes participants' drive towards an interpersonal consensus'' (Robles, 2011, p. 53).

Li and Seale (2007) propose three categories to classify how supervisors formulate critical feedback; direct feedback, indirect feedback with caution; and indirect feedback with repair. The analysis below sheds some light on the crucial role that DMs and

accompanying gesture play in strengthening the intersubjective relationship and thus lowering the power distance between the participants that might be caused when critical feedback is offered.

1. SP1: I don't know. hhh (0.6) how is this going to work? now uh
2. theoretically it is pushed output, right?
3. St1: yeah
4. Sp1: *but the teacher in me has a hard* time uh when someone is
5. saying please stop writing and lay down your ben,
6. St1: um
7. Sp1: alright (1.5) next most hotels don't serve lunch after six
8. St1: yeah
9. Sp1: *you know* if students don't really get things and they
10. don't really have a good idea around it they are not gonna
11. make very nice sentences
12. S1: no
13. Sp1: so we want it to be sure that everyone is pushing with
12. enough contents
14. St1: yeah

In this extract, the supervisor is commenting on the pushed output activity. After going through the questions in the draft, the supervisor initiates his turn with disclaimer followed by an inbreath and a lengthy pause. In this case, *I don't know* does not serve the literal meaning of insufficient knowledge, instead it performs a face-saving function which mitigates the supervisor's potentially controversial opinion. In addition, and as the risk of his critical feedback being taken unfavourably, it is abridged by being preceding with a disclaimer (Pichler, 2007; Potter, 2004). This interpretation is stressed by the immediately following tag question which serves to engage the student in the interaction.

In an endeavour to justify his critical comment, he provides an explanation prefaced with *but* that projects a contrast. The insertion of *you know* and the pronoun *we*

give credit to the collaborative nature of the talk. In other words, the supervisor here implies that they both belong to the same community of practice in which relationship building is a requirement (DuFour, 2004; Little 2003). ST1 accepts the feedback uncritically by directly replying with an acceptance tokens on three occasions. Therefore, this type of feedback could be classified as giving indirect feedback with caution (Li & Seale, 2007).

Concurrently when uttering *I don't know*, the supervisor changes his body posture by leaning a slightly towards his side instead of being in front (figure 5.10). He also averts his gaze to the left-hand side.



Figure 5. 10: leaning-forward gesture

As he uttered (*right*) at the end of his turn, he maintains eye contact with the student in an attempt to get agreement. What is interesting here is the leaning forward body orientation and the hand movement which is directed towards the self as the supervisor utters "*but the teacher in me*" which is realised with a rising tone. This embodied act together with the choice of this particular tone necessarily facilitate and enhance intersubjectivity. The orientations of body movements in this example may lend

support to the suggestion that gestures are communicatively intended to build rapport and thus can enhance social interaction (McNeill, 1992).

A further proxemics feature was identified when the supervisor moves towards the student while uttering “you know” (line 9) which was produced with a fall-rise tone. The employment of this specific body movement along with the change in tone might reinforce the supervisor’s intention to uphold the interpersonal interaction with the student.

5.4.2 Instructional talk and the work of advising

The initiation and reception of advice is a typical component of educational settings in general and one of the critical elements of doctoral supervisions in particular (Drescher, 2012; Limberg, 2010; Waring, 2012). Advice is generally defined as an attempt by the speaker to get the hearer to do something (DeCapua & Huber, 1995). In a CA realm, it is “an interactional activity, where information is offered rather than requested and where the information is given as a means to forward a certain course of action” (Henricson & Nelson, 2017, p. 106). Based on the definitions, giving-advice may take the format of “recommendation, instruction, or direction as to how someone should behave in a given situation” (Peluso et al., 2016, p. 2). Advice thus suggests an asymmetry between the advice-giver and the addressee as the former is presumed to be more experienced or informed (Poppel, 2019).

While the work of advice is a seemingly simple action to take, it constitutes an intellectually challenging task grounded in its nature as an inherently face-threatening act directed to the negative face of the recipient (Limberg & Locher, 2012). Consequently, it is

expected to be given with redressive action in order to avoid face damage (Locher, 2006). The act of advising could also be prone to misunderstandings specifically "where interpersonal linguistic communication is likely to be influenced by institutionally or culturally determined norms" (Culpeper, Crawshaw, & Harrison, 2008, p. 298). Heritage and Sefi (1992) highlighted that advice-giving is both normative and asymmetric. It is normative in that it entails a preferred course of future action. It is also asymmetric as it presumed that the advice-giver is more knowledgeable than the advice-receipt.

In the supervision meetings examined, the majority of advice sequences are delivered with DMs. The most dominating pattern of advising takes the form of an indirect and mitigated act by being impeded in a question-answer sequences. In most cases, ST1 is prompt in accepting the supervisor's advice by enthusiastically expressing his agreement. The following extracts provide examples of these episodes where DMs play crucial roles. The first extract is taken from a conversation where the supervisor is reviewing the exercises for the matching activity.

1. SP1: I don't really understand this activity(.)
2. ((pointing at the paper))
3. aren't they just reading sentences now↑?
4. St1: it's (.) uh because uh the other partner will have to(.) uh
5. listen to uh listen to it
6. SP1: mmm
7. ST1: the other partner will make a sentence
8. SP1: yeah
9. ST1: so it is the same time (0.3) happening at the same
10. time uh
11. ((looking at papers in her hand))
12. where is the other paper
13. SP1: Ok give me student B paper

14. ST1: ((handing over a paper to SP1))here
15. SP1: alright student B uh we do our matching OK?
16. ST1: yeah
17. SP1: and the ten minutes went by
18. ST1: yeah
19. SP1: How do we check our answers?
20. ST1: You will say it to your partner uh
21. SP1: (So
22. ST1: Number) one is D, number two is lay down your (pen
23. SP1: Yeah)
24. ST1: Number three is serve lunch
25. SP1: yeah OK so we check it
26. ST1: Yeah
27. SP1: And than I↑(.3)((looking at the paper))
28. ST1: Go to the next one, use the verb in question one to
29. make a sentence, so I am gonna make the sentence, I'm
30. gonna say it to
31. you and then you(will
32. SP1: Yeah)
33. ST1: Say the example to me
34. SP1: (0.5)hm
35. ST1: It is at the same time
36. SP1: (0.4) Yeah (.3) but why this is not one and one?
37. ST1: (2) Do you mean (like
38. SP1: I think you know we can do the matching first for both
39. of them Probably and (then
40. ST1: oh) yeah↑ that will save time
41. SP1: yeah

The extract above is relatively long in order to show the whole episode of interaction. SP1 here opens up the topic by asking a question which is considered as the preparatory work of advising (Henricson & Nelson, 2017). In line (1), he disclaims knowledge of the activity by expressing that he does not *really* understand it. By attributing the expertise on the topic to ST1, he pinpoints the complexity and the negotiation of the participation roles in this particular setting (Nelsonet al., 2019, p. 234).

ST1 responds to the question with a sequence that is, in a way, disfluent as it is filled with fillers and short pauses. These fillers may suggest either her uncertainty of the answer, or her hesitation to accept the expert role assigned to her by SP1. As an act of collaborative work, SP1 then tries to develop a strategy for solving the issue by engaging himself in the activity and playing the role of (student B).

After this exchange of question and answer, the implicit advice comes at line (34) which was prefaced by a combination of two DMs. The epistemic marker *I think* frames the advice as a personal recommendation. When it collocates with *you know*, however, it gives the impression that the suggestion is known by both participants. He further aligns with ST1 by uttering *we* directly after the markers (line 36). This makes the advice seem "more inclusive and less forceful" (Searle 1979). The lexical item *probably* also emphasises the tentative manner in which SP1 produces his advice. ST1 accepts the advice even before SP1 has finished his delivery. This slight overlap, which was produced with a high-pitched voice is a clear indication that she acknowledges and accepts the advice which is further supported by her Justification as way to back up the advice. At the end of the turn, SP1 responds with a response token in an indication that they have reached mutual understanding. The following extract in another example of an advice exchange which is initiated by the student and reports similar findings.

1. ST1: So now I'm thinking about the analysis when I get back uh I am
2. Thinking of R for the statistics so (.)
3. SP1: why?
4. ST1: because there are different variables here uh (.) you don't
5. think so?
6. SP1: do I need to repeat the same argument that I had with
7. Dian?(hahah

8. ST1: hahah) I'am I'am really (quite
9. SP1: haha)
10. ST1: O:k with using any(thing
11. SP1: I have) no uh at the end of the day I don't care how you
12. do it(0.8) I only care that you spend too long going down
13. on R to learn it
14. ST1: yeah
15. SP1: I mean if it allows you to do something that uh that SPSS
16. doesn't then go for it what are we doing that SPSS can't
17. do?
18. ST1: it's just no uh no nothing really
19. SP1: I took an R course in summer too and I think it is
20. something good,
21. but I took another course for four weeks and it was
22. expensive and
23. still don't think that there is any analysis that I can't
24. do in SPSS
25. ST1: oh really
26. SP1: part of the problem for me with R is that I'm very uh I
27. think I am
28. a visual person, so SPSS allows me to see my data kind of
29. uh and
30. then you know click on the data in a very uh I want this
31. to do this and that allows me to understand the data a
32. bet better but with R you just telling it to do things and
33. that kind of gets lost in my mind
34. a bit
35. ST1: Yeah ok it makes it easy to me honestly as I worked with
36. SPSS before
37. so yeah

In lines (1-2), ST1 seeks the supervisor's advice regarding which statistic programme to use. It is interesting to see the marker *so* initiated and terminating the turn and, in each case, it serves a different function. At the beginning, *so* is used to mark inferential connections and formulates the turn as resulting from previous discussion (Bolden, 2009). Having brought the sequence to a closure, the function of the turn-final *so*

here has both floor-yielding and prompting functions (Buysse, 2012). The turn management function is assumed given the falling tone the marker carries and the following pause. It could also be understood as acting as a prompt for SP1 to recover the implied request for advice, and in this sense, it is categorised as belonging to the interpersonal domain.

Instead of giving advice and in order to elicit more explanation, SP1 asks a question by merely uttering *why?* ST1 then gives an answer in a hesitant way as she ends with asking a polar question to seek SP1's confirmation. The supervisor responds with another question which suggests some reproach, but at the same time seems not serious as it is followed by laughter. The student understands the humorous mode of the talk which is announced by a mutual laugh in the overlapping turn. Laughter in both turns seems to function as a sequential pivot which allows the speaker to "quickly and economically respond to the partner by overtly displaying affiliation" (Petitjean & Morel, 2017, p. 11). This affiliation is further strengthened in the upcoming action where ST1 offers her complete compliance and willingness to use any programme SP1 might recommends.

The supervisor then gives a long explanation as to why he prefers using SPSS with particular reference to his personal experience. In so doing, he gives the student optionality to either accept or rebuff the suggested advice (Sarangi & Clarke, 2002), thus turning advice into a proposal for joint decision (Mondada & Steensig 2011) or joint action (Clark, 2012). Similar to the previous example, the combination of *I mean* and *we* may imply that the student is directly involved in the action (Stevanovic; 2012; Stivers & Sidnell,

2016) which gives *I mean* an interpersonal rather than epistemic function. It could also be seen as a way to soften the propositional content of advising and mitigate its strength (Henricson & Nelson, 2017). The student then accepts the advice with the acknowledgment token *yeah* and an accompanied head nod. The heavy presence of overlapping and hedging devices in this example seems to indicate that advice, in this situational context, holds a rapport enhancing orientation (Spencer-Oatey, 2005) rather than power inequality.

5.4.3 Discursive talk and the negotiation of epistemic displays

As previously explained in chapter 3, epistemicity in this study is defined as the way in which participants "claim and express knowledge, or the lack of it, and how they orient to their own and other's states of knowing" (Heritage, 2013, p. 370). In accordance with Stivers et al. (2011), participants in interaction can take three different stances related to their epistemic rights; primacy; and responsibility.

Following previous studies (Handal and Lauvås 2008, Vehviläinen 2015), the default setting in supervisory discourse is that supervisors are likely to possess a greater professional knowledge (k+), whereas the students are relatively less knowledgeable (k-), yet they are supposed to have the direct first-hand access (Grant, 2008). In terms of primacy, students have the right to discuss, ask questions and inquire about any issue related to their research. The supervisors instead have higher authority to suggest relevant actions and guide the direction of the research. As for responsibilities, the students are required to present written drafts that report research progress and the supervisors are responsible for giving feedback, advising and providing possible answers and solutions to

any problems that might arise over the course of the research (Wisker, 2012; Schulze 2012).

The following extract which is rich with participants' interaction offer a helpful example that illustrate the participants' orientation to epistemicity.

1. SP1: I think pictures would uh kind of help uh to bridge uh it
2. would be in between the English definition and the Arabic
3. definition sort of, right
4. ST1 yeah
5. SP1 Or do you think uh do you think they can learn the words
6. from an English example and English definition? Do you
7. think they can learn the words? (0.4) Is that most similar
8. to what will go on in teaching vocabulary there?
9. ST1: No uh with English example and English definition only
10. without Arabic translation *I think* it will be difficult
11. for them *may be uh I don't know*
12. SP1: so in the classroom there is always gonna be Arabic
13. translation used?
14. ST1: I think most of the time yeah uh for vocabulary uh and
15. grammar and thing
16. SP1: mmm
17. ST1: ***but you know like*** if we wanna use pictures (.) right (.)
18. uh say about blow and spend uh blow in the meaning sense
19. of spend if we wanna use pictures how can we use pictures
20. for that meaning sense uh I mean↘↗ (0.3) uh I don't know
21. SP1: um
22. ST1: it doesn't work right?
23. SP1: (0.3)yeah
24. ST1: oh ok good hahah

In the course of this episode, the participants are discussing how verbs could be illustrated in the teaching material. The supervisor starts by suggesting providing pictures which could help the students understand the meaning. He peppers his suggestions with

four different DMs (i.e. *I think*, *kind of, sort of and right*). *I think* at the beginning of the turn seems to serve a tentative rather than deliberative function (Kärkkäinen, 2003). This tentativeness is further announced in the hedging markers that follow (*sort of* and *kind of)* which both function as shields to create a distance between the supervisor and his proposition (Prince et al., 1982). The marker *right* in turn-final position functions to seek confirmation. Put simply, the combination of the four markers give the sense that the supervisor implies rather than enforces an action and consequently weakens the assertiveness of the advice.

After the response token from ST1 in line (4), SP1 proceeds by asking a question in yes/no polarity formats and repeats it twice. SP1 then pauses to encourage ST1 to respond. As the student does not take the turn after a long pause (line 7), SP1 reformulates the question again by referring to student experience. Both the insertion of various DMs and the questions work to provide a genuine opportunity for negotiating the distribution of epistemic access and rights rather than cementing them.

Though the supervisor talk positioned the student as the one who knows, the student expresses uncertainty in her answer which is evident from the insertion of the tentative marker *I think,* the disclaimer mark *I don't know* and the modality *may be*. SP1understands the student's uncertainty around his answer therefore he reiterates what ST1 has just said. In doing that, he does not claim any epistemic primacy, instead, he carves out space for the construction of the student's autonomy (Heller, 2017; Szczepek Reed, 2017) and allows more opportunities for the student to become "active conversational partner" (Durden & Dangel, 2008, p. 252).

ST1's answer to the question similarly demonstrates a compelling case. Despite being positioned as a source of knowledge, she continues to phrase her answer as an opinion rather than something she confidently knows. Again, she initiates her utterance with *I think* and terminates with a vague phrase (*and thing)*. The whole turn therefore contributes to redefining her epistemic status as a novice.

At first glance, the two occurrences of *you know* above might be seen as inserted to signal disfluency and problems in speech production because of the repeated occurrences of both hesitation markers (*uh* and *um*) and pauses with various lengths. With the help of co-occurring gestures, they might also be interpreted as an indication of hesitation to agree with the supervisor. In other words: *you know* here is a recipient-oriented stance marker, employed as a hedging device to mark the epistemic stance in downgraded manner, thus turning the activity into a collaborative activity and transforming the epistemic status from one of individual epistemic stance into one of joint epistemic stance that ensures a smooth and very cooperative progression of the overall activity.

At line 17, there is an active participation from ST1 as she tries to express her point that the use of pictures might not be applicable to all the verbs. As her point, in a sense, is in disagreement with the previous proposal of SP1, the notable presence of DMs is evident. Firstly, she initiates her turn with *but* which typically prefaces a dispreferred turn (Schegloff, 2010). The marker collocates with other two tokens: *you know* which is used as an interactional resource that proposes shared knowledge (Asmuß, 2011); and *like* which functions as a hedge to indicate that she does not fully commit to what she is saying

(Sharifian & Malcolm, 2003). This combination of DMs is an essential building block of indirectness (Drew, 2018) which serve as a softening function by downgrading the implicit resilience to the advice. the use of *right* at the end is to gain support and restore the discussion to a more affiliative footing.

The second example is from the same supervision session and comes few turns after the previous discussion

1. ST1: so what else you'r gonna do? (0.2)
2. SP1: so uh for example (.) let's take this one you're gonna talk
3. about (lay down, laid down, laid down) alright (.)You can
4. explain that this is just the past uh present past and then
5. pp right?
6. ST1: Yeah
7. SP1: And then you can probably show them number one and it
8. could be the definition or uh you can have anything
9. else here an example sentence uh a definition or something
10. like that uh cause everything I think kind of needs to be
11. the same
12. ST1: yes that's what I wanted to ask you uh would we provide
13. pictures only for the example I don't know uh I mean I am
14. not sure about the definition (0.5) because sometimes in
15. definition like uh let's see here move on for example
16. forget about something difficult in the past and move on
17. Sp1: hmm
18. St1: uh and move uh we will have a word like mo::ve in the
19. definition which is uh (03) I don't know if they get it or
20. something
21. Sp1: and you're not doing an Arabic definition
22. St1: no (not really
23. Sp1: why?)
24. St1: should we? (0.3) Because it is gonna be in the exam uh
25. a multiple-choice exam (0.4)
26. SP1: Yeah that's right
27. ST1: may be just provide like explanation uh explaining note in the

28. slide *or something like that*
29. SP1: (.) yeah

SP1 begins by asking a question that offers ST1 an opportunity to engage in the discussion. While he brings his TCU to completion by a pause at the end of the question, ST1 offers no uptake of any type. *So* in line 1 can be viewed as belonging to the sequential domain as it has a topic-initiation function used to connect parts of talk together (Lam, 2009; Zhao, 2014) whereas the second occurrence in line 2 is multifunctional. It is a topic continuation marker and at the same time it has the interactional function of indicating that SP1 is engaged in planning (Sinclair & Mauranen, 2006).

In lines (3-10), SP1 frames his interaction as a suggestion which is generally perceived as a less direct form of feedback in the sense that it provides the student with the option of choosing whether to respond or not. ST1 then responds by expressing that providing the word and a picture that explains it might be enough. In line 8, she explains her hesitation and uncertainty regarding whether or not to provide a definition. Although she attempts to yield the turn by a long pause which is a suitable place for turn transition (line 13), the supervisor, apart from the backchannel at line 11, did not take the turn, therefore, she continues to elaborate her point by providing an example of one of the verbs “i.e. move” for which providing a definition might be slightly confusing. The supervisor then asks why she is not providing an Arabic definition. By merely saying *why*, the supervisor sets the terms by which the student should respond (i.e. providing a reason).

Interestingly, the student's initial response departs from the constraints embodied in the question as she provides a non-conforming response (Raymond, 2006). By asking a question instead she implies her doubt about her decision. Following a brief pause (line 13), she then provides her justification for not including the Arabic equivalent by giving alternatives. she ends her turn with a general extender (*or something like that*) which signals the assumption of uncertainty (Tagliamonte & Denis, 2010). It also implies that ST1 has just provided one possible way of dealing with the matter and that more could be possible (Overstreet, 2005). Put differently, it is a clear invitation to the SP1 to volunteer and flesh out that *thing* (Waring 2017, p. 25), probably by offering other options which in turn demonstrates her orientation to the supervisor' epistemic authority (Stivers et al., 1997). Instead, SP1 responds with a simple *yeah* uttered quietly which does not clearly indicate his orientation to ST1's knowledge access.

To summarise, through the use of DMs, ST1 and SP1 clearly orient to their institutional responsibilities as well as their face needs. In general, the use of DMs, as well as non-verbal behaviours possibly assist the participants to base a sense of rapport with each other and hence, ensure congruency between supervisor's role and the student's needs (Malfoy & Webb, 2000). This will ultimately increase the success of goal directed interactions.

5.5 Concluding remarks

The purpose of this chapter was to analyse the most frequent DMs used by Student 1 and Supervisor 1 in order to elucidate how a multimodal analysis may contribute to the understanding of their meaning and interactional work. In general, the results reveal that

each of the markers discussed serves more than one function which points to their polysemous characteristic (Buysse, 2012; Crible et al 2019). In most cases, it was quite challenging to limit an instance of DM to only one functional category (Lim, 2016).

ST1 mainly uses DMs as an intersubjective strategy to build a relationship with her supervisor and to enhance common ground (Clark, 1996, p. 12). In the meantime, she tends to take the most unknowing position possible by displaying her insufficient knowledge and uncertainty through the heavy presence of DMs with the meaning of uncertainty, indirectness, vagueness and hesitation. In so doing, she orients to the asymmetric epistemic status (Heller, 2017) by portraying herself as a novice researcher while concurrently, asserting the claim that the supervisor is the expert.

Moreover, the student's frequent resort to the two emphatic tones (2 and 4) and instances of gaze aversion hugely contributes to the understanding of this epistemic stance. This weak epistemic access and lower degree of primacy is rationally predictable when considering that ST1 is at a very early stage of her PhD research when she is still developing her methodology and research questions. Therefore, she has not yet established enough subject knowledge and a fitting research design.

On the other hand, SP1 often positions himself as a facilitator of learning, rather than a conveyor of knowledge. His use of DMs reflects his intention to affiliate with the student by displaying shared stance and creating the balance between his institutional roles of giving guidance and promoting the student's autonomy. Furthermore, he continually resorts to hedging, self-repair and mitigating dispreferred turns in order to

embrace the student's disclaimer of knowledge and uncertainty, therefore providing encouraging and friendly supervision along with giving guidance.

Looking closer at the multimodal aspects, the analysis revealed that in most cases, neither prosody nor manual gestures help distinguish between the different functions of *so* and *you know*. Yet, there seems to be some degree of association between embodied resources and the markers *I don't know, or something like that* and *we*ll. When occurring in dispreferred turns, the two tokens are marked multimodally by gaze aversion and body orientation. Consistent with Duran and Sert (2019 p. 83), Heritage (2015) and Kendrick and Holler (2017), the employment of embodied resources in ST1-SP1 interactions seem to have an apparent association with the notion of preference (Sacks, 1987) as both participants tend to frame their dispreferred turns in an aligned and affiliated way through the use of co-verbal gestures.

Taken as a whole, these results provide support for earlier claims that embodied constructs are grounded in the communicative task and that they would not be "part of the utterance's referential content; rather, they would indicate the kind of speech act that speakers are engaging in" (Harrison, 2010, p. 30). Consequently, to highlight a particular function of an accompanying gesture, prominence should be given also to the corresponding communicative behaviour patterns (Tabensky, 2001).

Chapter 6: Supervisory discourse in an Engineering studies domain: Analysis of case study 2

6.1 Introduction

The previous chapter has shown that Discourse Markers are distinctive communicative devices used by STUDENT 1 and SUPERVISOR 1 in order to fulfil a number of pragmatic functions such as appealing to common ground, hedging, disclaiming knowledge, signalling a topic transition and mitigating dispreferred actions. Further multimodal analysis has revealed that the two participants use accompanying multimodal practices for the primary purposes of communicating different degrees of epistemic stance and downplaying the interactional asymmetry and power relationship. Additionally, it is through the multimodal features that particular functions of the same DM are disambiguated.

This chapter moves to focus on supervisory discourse between STUDENT 2 and SUPERVISOR 2 (ST2-SP2) which takes place in an engineering studies domain. The chapter is organized into four main sections. After this brief introduction, sections (6.2) and (6.3) provide insights into the functions of the most frequent DMs used by ST2 and SP2 respectively, besides zooming in on some salient coverbal gestures occurring with other markers. Section (6.4) explores the role of multimodal DMs in the management of different types of talk and the last section provides a summary of the results and some concluding remarks.

6.2 DMs in Student 2's speech

According to the frequency analysis (refer to chapter 4, 4.1.2), *I mean* and *I think* are the most recurrent DMs in ST2's discourse. The two markers have some standard criteria, one of which is linked to the presence of the personal pronoun. In fact, and according to the Word Frequency List, *I* is the second most frequent lexical item in ST1's speech after (uh) whereas (you) is the second most frequent item in SP2's data preceded only by (yeah). Research on the roles of personal pronouns (for an overview, see Pennebaker, 2011) has often associated their usage, among other performative states, with the need to establish self-identity (InigoMora, 2004), signifying subjective role in the interaction (O'Keeffe et al, 2011, p. 36) and conveying self-enhancement (Barasch & Berger, 2014). Besides, their usage does not only reflect the speaker's traits, but can also have an effect on the listener's perceptions and participation in the interaction (Packard et al., 2018).

The second shared criterion is that the two markers are among the least semantically bleached DM (Fox Tree & Schrock, 2002; Fuller, 2003) as many of their functions are generally derived from their literal meanings of indicating epistemic stance (Vukovic, 2014), subjectivity (Smith, 2002; Traugott, 1995), evidentiality (Nuyts, 2001) and self-reference (Halliday, 1994).

The two sections below discuss the most salient functions of the two markers with an attempt to show how the multimodal features may contribute to their multiple functions.

6.2.1 Enhancing clarity through the use of *I mean*

I mean appears 66 times in ST2's speech which accounts for 32.2% of the instances of the token in the aggregate data. The marker is among the most frequent two-word chunks in the British National Corpus (BNC) and the spoken components of the Corpus of Contemporary American English (COCA) (Baumgarten and House, 2010; Davies, 2008). It is also ranked the third most frequent lexical bundle in the five-million-word CANCODE spoken corpus (O'Keeffe et al., 2007).

Previous research on *I mean* (Schiffrin, 1987; Erman, 1987; Fox Tree and Schrock, 2002; Fuller, 2003; Kaeser, 2001, among others) tends to agree that the marker's core meaning is to signal "a speaker's upcoming modification of the meaning of his/her own prior talk" (Schiffrin, 1987, p. 296). Based on what the speaker wants to elucidate, the modification is not necessarily restricted to simple paraphrasing, it could also include other interrelated values such as "specification, explanation, summary or denomination, and even to non-paraphrastic meanings such as implication, conclusion and contrast" (Cuenca, 2003, p. 1073). These latter meaning senses are defined as being meta-communicative in comparison to the meta-linguistic meaning of reformulation (Schiffrin, 1987, p. 304).

Regarding the current data, ST2 uses *I mean* for three essential functions: (1) to justify a counter viewpoint; (2) to initiate self-repair; and (3) to gain the floor. In each of these functions, the core meaning of modifying or reformulating (either textually, cognitively or interpersonally) is incorporated in one way or another.

6.2.1.1 Justifying a counter viewpoint

28 tokens of *I mean* (42.4%) are employed as justification devices to provide support for a statement or claim that is different from that proposed by the supervisor. Erman (1987, p. 119) classifies this function as situated at the macro-level since it " introduces a more substantial piece of discourse" whereas Fox Tree and Schrock (2002, p. 733) view it as situating at the interpersonal level since its insertion "reduces the force with which the speaker asserts his thoughts and presages the less face-threatening rephrasing".

According to the marker's position in the utterance, two types of this function are identified. The first type is when *I mean* occurs in a turn-initial position prefacing an objection or disagreement to the interlocutor's utterance presented beforehand, as in the next example.

1. SP2: then you have modelling in the fourth chapter
2. ST2: → *I mean* Dr. Ali (0.3) in the plan we have modelling and
3. the result should be in chapter two or three I think↓

Here, the student initiates his turn with *I mean* followed by a brief justification (in the plan) and his different standpoint (should be in chapter two or three). He further reinforces his strong personal stance through the use of *should* and *I think* which both carry focal stress. Being produced with falling intonation at the end of the utterance, *I think* additionally indicates that he has some confidence in the validity of his suggestion (Svennevig, 2003, p. 307).

On a different note, but of particular interest to the understanding of the whole interaction, is the way the student addresses the supervisor using the respectful title (*Dr*.)

which bears two interpretations. It could either mirror the cultural values of the Arab society which both participants share (Goddard, 2012), or it may reflect that he is aware of the asymmetrical relations with the supervisor and therefore he is not disputing with him, instead he is just giving different prospective. The same interpretation goes with the use of *I mean* in the following example.

1. SP2: So **so) we** have two designs, right?
2. ST2: → no I mean sorry Dr. Ali no no we just have only one
3. here really which is using diaphragm I mean (0.6) in
4. this design we used bellow with power piston
5. SP2: ((looking at the screen and scrolling down))
6. SP2: (2.6) Oh OK right right

The second type of this function typically occurs in turn-medial positions in which the counter argument precedes *I mean* and what comes after is the reasoning, as exemplified below.

1. SP2: I think) er at this stage your concentration is
2. on writing the thesis rather than (.) you know occupying
3. yourself with other (things
4. ST2: → But) both of them are relevant (0.3) *I mean* I have
5. time for them and I have the material as well so↓

The discussion here is about the student desire to participate in two conferences. The supervisor advises the student to pay more attention to the writing process rather than distracting himself with other work. However, the student firstly disagrees with a *but*-prefaced utterance which overlap with the supervisor (line 4). He then provides justifications for his point of view (i.e. he has time and data to present) preceding them with *I mean*, thus mitigating the face threatening act of disagreeing.

The frequent use of the marker with this specific function is not surprising given the nature of supervision sessions where critical speech is considered a "natural ingredient" (Björkman, 2015, p. 223). Moreover, this interpersonal function of *I mean* is particularly important as it mirrors the student's orientation to becoming an independent researcher who is capable of taking the initiative and justifying his own decisions (Waring, 2007, p. 127). In contrast to ST1 who often displays himself as a passive advice recipient, ST2 shows a higher degree of active participation in discussing academic issues. His academic knowledge allows him to argue and even disagree with his supervisor.

6.2.1.2 Initiating self-Repair

18 tokens of *I mean* (27.2%) are used as self-repair markers which are related to the marker's original value of reformulating a discourse segment. This usage is thus classified under the textual category as it concerns with establishing and maintaining coherence of the discourse in progress by structurally signalling that "what is to come is an alternative version of the previous part of an utterance" (Mattson, 2009, p. 185). Crible and Pascual (2019, p. 3) identifies four components to self-repairs (figure 6.1) which include, the item to be repaired (a reparandum), a moment of interruption where the flow of speech in interrupted, an editing phase with an optional editing term, and the repairing segment (the reparans). It is within the editing phase that DMs are often applied.

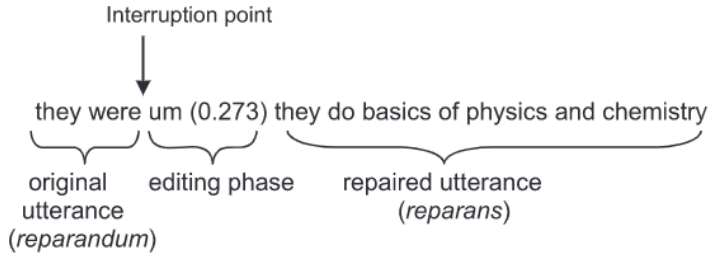


Figure 6. 1: Example of self-repair and its constituent parts (Crible and Pascual, 2019, p. 6)

Two types of self-repair are identified in the current data. The first one is to self-correct a grammatical or phonological error, as illustrated in the two extracts below:

1. ST2: When I go through uh (0.3) *I mean* went through the
2. discussion I felt it needs more uh more revision

1. ST2: → then I take uh (.) I mean I took all the calculation to
2. another part which I called it engine structure
3. SP2: right so you brought all those bellow calculations under
4. the structure
5. ST2: yes

The examples above include two instances of correcting grammatical errors as the verbs "go" and "*take"* are replaced with "went" and "took" respectively, and both are preceded by *I mean* as a marker of self-repair. In this case, the corrective function refers to "only one word in the previous clause or phrase" (Erman, 1987, p. 118).

The second type of self-repair occurs in the absence of grammatical or syntactic errors and is targeted at a "trouble source occurring in the preceding segment" (Kaur, 2011, p. 2707). In this case, the speaker faces difficulties in formulating the message

therefore he uses the marker as an explicitness strategy (Mauranen, 2007) to prevent misinterpretation and contribute to “increased recipient understanding” (Kaur, 2012, p. 593). The following excerpt represents this meaning sense.

1. ST2: here actually I find myself um confused between (0.2) the
2. characteristics of the bellow (0.2)
3. SP2: um
4. ST2: and I did some uh calculation (0.4) which uh which should
5. go back (.) so I moved uh I left this part for just(0.5)
6. → theoretical characteristics for uh *I mean* to tie
7. together and make it a good structure (.) all the work for
8. the bellow
9. SP2: yeah

The student seems to be aware that the actual reference of his utterance is potentially unclear as it is filled with pauses, fillers and cut-offs, therefore, self-repair deemed necessary to render the meaning clear. What comes after *I mean* thus serves to elucidate the intention and illuminate the meaning of the preceding utterance. The student pays careful attention to his talk and certifies that he communicates his thoughts in an understandable and meaningful way which signals that he is ‘‘attentive to the hearer’s need for explanation’’ (Brinton, 2008, p. 116).

In terms of prosodic features, most instances of the marker serving the two functions mentioned above (n=39) are realised with tone 0 (i.e. without tonicity) while being mostly followed by utterances with rising intonation that are further highlighted through the additional emphasis. This could imply that this specific function of the marker is topical dependence. As an alternative, the prosodic focus of the student typically falls on other contextual items occurring either before or after the marker (Romero-Trillo, 2017). Concurred with Gonen, Livnat and Amir (2015, p. 81), this finding can be explained

partially as being the result of the process of grammaticalisation whereby the marker is qualified as "a meta-linguistic term that relates to the interaction between the speakers rather than to the content of the discourse".

6.2.1.3 A floor-gaining device

In fewer occurrences (9 tokens) *I mean* serves a non-reformulating function used for the management of turn-taking (Fox Tree & Schrock, 2002, p. 741), as in the extract below.

1.	SP2:		this is one of the configurations that could have been
2.			manufactured
3.	ST1:		yes yes exactly yes
4.	SP2:		but because of the simplicity of the diaphragm so the
5.			power piston was replaced by the (diaphragm
6.	ST2:	→	I mean↑) we faced uh because we faced major problems like
7.			I mean how to seal the bounce space
8.	SP2:		yeah yeah
9.	ST2:		and the other problem is I mean uh because of the very
10.			high engine so it was wobbling (and it
11.	SP1:		so so) so I want to see all that before the diaphragm
12.			Structure (.) all that has to be explained here
13.	ST1:		oh ok

The student's use of *I mean* in turn-initial position (line 6) has the frame-marking quality of structuring the discourse as it indicates the student's intention to grab the turn. However, the function of the other two occurrences of the marker (lines 7 and 9) are classified as serving elaboration functions because of the clarification taking place in the turn since the student is trying to make a point and what comes after the markers is meant to illustrate it.

The choice of rising tone here (as the case with the remaining occurrences serving the same function) is also influential as it bears two interpretations. At first sight, it may be seen as reflecting the competitive nature of the overlapping talk, a suggestion which is supported by French and Local (1983), Wells and Macfarlane (1998) and Yang (2001) who all argue that raised pitch and loudness are features of competitive overlaps "due to the urge of the speaker to attract the attention away from the ongoing speech" (Truong, 2013, p. 1404). Recently, Pfänder and Couper-Kuhlen (2019, p. 46) refer to this type of simultaneous speech as "chiming in" through which the overlappee makes an "embodying epistemic claim to know as much as the main speaker". In contrast, Kurtic et al (2010) see the rising tone as having a positive influence on the collaborative floor because it potentially reflects high involvement and enthusiasm.

To classify precisely which type is used here, it is necessary to examine the whole context surrounding the overlap. Firstly, the fact that the student does not change the topic but instead elaborates on the current issue under focus may display his shared understanding and cooperative move. Secondly, when looking at the 'next-turn proof Procedure' (Hutchby & Wooffitt, 2008, p. 13), the supervisor shows no sign of discomfort, instead he actively acknowledges and reassures the student's participation in the speech with the repeated minimal uptake token *yeah* (Heritage & Sefi, 1992). Thirdly, throughout the turn, the two interlocutors participate in a prolonged mutual gaze which is a further clue that the overlapping talk is perceived as being cooperative (Oertel et al., 2012).

The student responds with *oh* which has the role of information management (Schiffrin, 1987) and accompanied by ok which is considered as an indication to the

subsequent termination of the topic (Beach, 1993). This combination thus can be explained as a signal of reaching mutual understanding. Therefore, at least regarding the current data, it is possible to disambiguate the turn-taking functions of *I mean* based on prosodic properties.

Taken as a whole, the extracts examined above demonstrates that the use of *I mean* constitutes a vital device that enables ST2 to reformulate his utterances and clarify his communicative intentions. The use of incorrect lexical items as well as disagreeing without giving a rational justification for the claim may result in ambiguity and troubles in communication (Johnson, 1991). In seeking to modify and elucidate his ongoing utterances through the extensive use of *I mean*, ST2 is thus seen to be orientated to accuracy and explicitness which results in close monitoring of his discourse.

Another factor that might motivate the extensive use of *I mean* is the fact that both ST2 and SP2 speakers of English as an L2. Results from research on second language learners (e.g. Kaur, 2011; 2012; Mauranen, 2010; Watterson, 2008) reports greater awareness of the need to improve the clarity and explicitness of their discourse in order to prevent misunderstanding. As Mauranen (2010, p. 13) pinpoints "the highly diverse and unpredictable circumstances L2 speakers find themselves in make the use of explicitness strategies …. Not only relevant but necessary".

6.2.1.4 Disambiguating the functions of I mean: why gesturing may not help

Since the study also explores the role of coverbal gestures, it was interesting to notice that, apart from averted gaze with three instances serving the function of initiating

self-repair, all the remaining tokens of *I mean* are produced in the absence of any form of accompanying bodily cues. As far as the current study is concerned, it appears as though the embodied actions do not help disambiguate the discourse functions of *I mean*.

However, going through every single instance of the marker and considering its surrounding utterances, it is noticed that various types of gestures are still produced which are not directly aligned with *I mean*. To give an example, in the following extract, the student makes use of manual gestures that are associated with parts of the utterances other than *I mean.*

1. ST2: and yeah it's better if you (0.7) I mean I'll try to
2. dismantle the flange (.) the top flange
3. SP2: yeah
4. ST2: So it's better to make the holes uh to use the flange
5. to make the holes on the diaphragm



Figure 6. 2: two iconic gestures with the word (flange)

The function of *I mean* in the example above is to initiate self-repair as it is followed immediately by the repaired lexeme (*I* instead of *you*) while being preceded by a pause. Once the lexical replacement is done, the student continues with the rest of his utterance in which he performs two forms of iconic gestures (figure 6.2). On the two mentions of (the flange) which were both stressed, he uses his both hands to form a circle

that represents its shape, hence “laying out the shape, and size and spatial characteristics of an object being referred to” (Kendon, 2004, pp. 176-177).

Interestingly, the direction of the fingers is slightly different. With (the top flange), the index fingers and the thumbs of both hands are directed downwards while the other three fingers are bent. In an iconic sense, this shape might represent the flange being on (the top). In the second gesture, the index fingers are in a flat position with the thumb of the left hand is slightly upwards which might embody the flange being placed (on the diaphragm). The same interpretation holds true for the following extract.

1. ST2: Anyway, I mention two (.)actually three uh designs
2. SP2: yeah
3. ST2: when when uh when I go through I mean went through
4. different designs of the engine
5. SP2: um
6. ST2: two are practically fabricated
7. SP2: um
8. ST2: and one it is actually was like theoretically uh
9. investigated



Figure 6. 3: iconic number gestures

The types of accompanying iconic gestures depicted in figure (6.3) are referred to as iconic number gestures (Sekine et al., 2013). The student uses his fingers to display the numbers three, two and one respectively. Interestingly, the student did not establish any mutual gaze with the supervisor until the end of his utterance which suggests that these hand movements have more of a cognitive function to help him package his information in a cohesive way (Casasanto & Jasmin, 2012). The gesture could additionally have an interactionally-oriented function as it draws the supervisor's attention to follow the contents being listed (Nicoladis et al., 2010).

To summarize, even in cases where the DM is produced without accompanying gestures, there tend to be other highlighted entities in the discourse that attract more than one mode of communication. Although beyond the scope of this study, a vital aspect this observation sheds lights on is the relationship between gestures and prominence in discourse (Esteve-Gibert and Prieto, 2013; Himmelmann and Primus, 2015; Jasinskaja et al., 2015). It seems that the lexical referent that contains the critical content of the message is the one which is conveyed simultaneously with more than one channel of communication. Since "gestures are produced as part of an intentional communicative act" (Kushch, Rohrer and Vilà-Giménez, 2018), they may boost "the prominence value of their respective referent to a certain extent" (Von Heusinger and Schumacher, 2019, p. 119).

6.2.2 I think and the expressions of two degrees of epistemic stance

In total, ST2 uses *I think* 64 times. The core function of this marker is often related to the expression of different degrees of commitment and certainty towards "the validity

of the communicated information" (Vincze and Poggi, 2016, p. 102; See also, Debras, 2017; Fischer, 2007; Zhang, 2014). Though less frequent, *I think* could also serve textual functions which tend to be phonetically reduced and prosodically unstressed (Kaltenböck, 2013; Macaulay, 2002). Some examples of the latter include indicating topic shifts, displaying a new perspective on the same topic, marking an on-line planning, and completing a sequence or a turn at talk (Kärkkäinen, 2003).

From all its potential uses, the following sub-sections focus on two salient epistemic functions of *I think* and presents evidence that they could be distinguished based on the co-occurring of specific multimodal cues.

6.2.2.1 highlighting strong opinions with a chopping gesture

Given the fact that unmarked simple declarative forms are usually considered sufficient to communicate the speaker's higher epistemic stance, research on epistemicity have mostly focused on the prosodic signals of uncertainty, paying less attention to the multimodal communication of high certainty (Vincze and Poggi, 2016, p. 103). When serving as a boosting marker that firmly emphasises higher degree of commitment, a crucial aspect that emerged from the overall annotation of the data is that in 13 instances (out of 32), *I think* is performed in combination with a particular type of hand gesture referred to as the chopping gesture (Fulford and Ginsborg, 2014, p. 56) which is typically performed with the two palms flat (or only one palm), facing in at the table and chopping in short downward motions.

A closer observation of the turns associated with this gesture reveals that they all express ideas of *decisiveness* and *intensification*. The following two examples help to show this.

1. SP2: You did not include the operating parameter for
2. the whole design here
3. ST2: yes, I did, but it is later
4. SP2: right
5. ST2: for example, here if you go uh scroll above a little
6. bit uh I'll try what I am going to do uh for the
7. pictures don't worry
8. SP2: alright
9. ST2: Because I'm going to uh
10. SP2: yeah (0.2)
11. ST2: **I I think** that(0.2) I **have to** (.) dismantle the the
12. engine
13. SP2: yeah
14. ST2: and to take **EXACTLY** what I need from the engine I mean
15. the picture that I need
16. SP2: right
17. ST2: So that is why I tried to just leave those to preserve
18. the space
19. SP2: OK

In this instance the student was explaining his reason for not including the pictures for the whole design in the section that they were reviewing. The reason was that he needs to disassemble the engine first and then take the photos. He initiated his justification using the marker *I think* (line 11) in the so-called reduplicative structure (*I I think*) which implies the speaker's communicative reinforcement of personal state (Gil, 2005, p. 34). In addition, the marker here occurs in combination with that. Unlike zero *I think*, this combination is "more likely to express an objective and informative statement about the speaker's belief" (Aijmer, 1997, p. 10).

By presenting his point as an accredited fact rather than as an opinion, the student displays a sense of ownership and involvement with the topic of his thesis (Sayed et al. 1998, p. 281). However, the placement of *so* (line (20) at the beginning of the turn is used to mark "a resumption of the main story line after a parenthetical" (Bolden, 2011, P. 667), which is both "projected by the teller and anticipated by the addressee". Therefore, *so* in this particular extract is designed not only to react to the prior turn, but also to project what comes after it, hence raising other-attentive issues (Bolden, 2006, p. 664, refer to section 7.1.2.1).



Figure 6. 4: the chopping gesture with I think (example 1)

In addition to being verbally expressing, the strength of his commitment is further manifested multimodally through head-nodding and the chopping gesture (figure 6.4). Head-noddings which co-occur with (I think) and (I have to) intensifier his degree of commitment and could hence be regarded as assessment markers in their own (Vincze & Poggi, 2016, p. 104; McClave, 2000). What is interesting about the gesture in this particular extract is that it initiates in line (11) and continues in action until line (15). As he utters (I need) at the end of his turn, he holds the fingers of both hands together in lowered steeple gesture which further conveys his confident attitude (Kumar, 2012, p. 28).

Taken together, the combination of all these modes clearly works as a signal of strong epistemic stance concerning the suitability of his decision which leaves no room for doubt. Another example of the asynchrony between the chopping gesture and *I think* is provided in the extract below.

1. Sp2: But I think we need uh before I go away we need to make
2. sure that you are only left with uh you know light
3. touches in terms of modification and things like that
4. rather then the main chapters so these two chapters
5. needs really to be finished
6. ST2: yes
7. Sp2: uh very quickly
8. ST2: These chapters honestly and the conclusion chapter
9. SP2: Yeah and the conclusion yeah so then you left with the
10. literature review and you already have lots of material
11. in the (literature review
12. ST2: **yeah but) honestly** (0.3) I think (.) I need to update
13. it and I need more details really around (.) I mean about
14. the sterling engine uh I feel it NOW because when I wrote
15. it it was the first year and

The excerpt opens with a recommendation from the supervisor of what the student should do before the summer holiday (lines 1-11). Embedded in this sequence is his thought about the literature review chapter which does not need much of work as the student already has "lots of material in the literature review". The student implicitly disagrees with the supervisor's assertion stating that he "needs to update it" providing a justification for his different point of view "because when I wrote it it was the first year". *I think* which is realised with a falling intonation, could thus be considered as a marker that displays individual obligation (Myers & Lampropoulou, 2012).

Another interesting observation is that the marker is accompanied with pauses on both sides which makes it form a separate intonation unit (Gonen et al., 2015). The act of self-commitment is further encoded by the heavy use of the pronoun (I) and the emphasis and raised volume on the two instances of (I need)

In synchrony with *I think,* the student positions his both hand on the table directly between him and the supervisor forming a chopping gesture. Combined with head nod and raised volume, the student keeps moving his both hands in an up-down orientation until the end of his utterance. In so doing, he gives the gesture the properties of gestural prosody (McNeill, 2008, p. 11, refer to 6.4.1). The fast speed of the head nod might be another indication that the student was not mulling over his ideas.

To sum up while *I think* is most often cited as a marker that indicates low or medium degrees of certainty (Aijmer, 2004, Prieto & Borras-Comes, 2018), its co-occurrence with this particular hand movement and head nods can potentially give more weight and add a stronger claim to its epistemic meaning. Such a finding matches the claim by Roseano et al. (2016, p. 169) who argue that "nonverbal marking emerges as a form of communication that is especially effective in the expression of epistemic stance".

6.2.2.2 Expressing a negotiated opinion

The following two examples show cases of *I think* projecting a hesitant stance. In the first extract, the student asks about participating in the model engineering exhibition which he thinks is an excellent opportunity.

1. ST2: and the other thing doctor Ali uh even they have like an
2. exhibition *so I think* (0.2) maybe it is a chance if we
3. want to take the prototype and to make it square

4. SP2: Take it there?
5. St2: yeah so What do you think is it↑ (1.5)
6. SP2: ↓Well I am not sure if we want to ◦take it◦(0.5)
7. St2: Ok uh anyway so I have another thing to do actually which
8. is the presentation for the conference?

The student here is offering a suggestion (to take the prototype and to make it square) which is preceded by I think. Many verbal and nonverbal cues help classify the function of I think as indicating lower degree of commitment. Firstly, the marker clusters with the modal verb *maybe* which is a clear indication of the possibility of his statement. Secondly, the modal verb is uttered concomitantly with lowering his mouth- corners in what is called a pout or mouth shrug (Morris, 1994) which unveils doubt or lack of responsibility (Kuhnke, 2007). Further, the student (figure 6.5) slightly shrugs his left shoulder when he utters the conditional close (if we want to) hence intensifying the indeterminacy of the sentence.

This repertoire of multimodal cues helps interpret the meaning of I think as a marker of non-intervention (Jokinen and Allwood, 2010; Debras and Cienki, 2012) as it "displays a possibility which the speaker neither denies nor accepts. In such cases the gesture is a way of saying that something 'could be so' but without making any commitment to any position with regard to it" (Kendon, 2004, p. 275). After a pause of 1.45 seconds, the supervisor envisages the student's hesitation and indecision as he proffers an assessment which is somehow contradict with the student's suggestion.



Figure 6. 5: mouth and shoulder shrug

In brief, the analysis above has shown that the degree of stance expressed by *I think* can be determined based on the multimodal analysis of the utterance. Stance is therefore a fundamentally multimodal phenomenon (Debras & Cienki, 2012).

6.2.3 The palm-up open hand gesture with *so* and *honestly*

Another multimodal resource that ST2 makes use of is the palm-up open hand (PUOH) gesture which is found to accompany two DMs: *so* (7 tokens) and *honestly* (5 tokens). As described earlier (Chapter 2, 2.3.5), the communicative work done by the three variants of this gesture is commonly related to the acts of offering, listing, clarifying or indicating obviousness (Kendon, 2004; Müller, 2004, Streeck, 2009). The analysis below documents two uses of the PUOH gesture and will argue that its meaning is not necessarily associated with the accompanying lexical component but rather with the contextual interpretation of the whole utterance.

6.2.3.1 The case of the PUOH gesture with so

While the joint positions of *so* defined in chapter four (section 4.2.1) are at turn-medial or turn-initial positions, the seven instances of the PUOH gesture exclusively co-occur with *so* where the marker is deployed by itself as a stand-alone item. A representative example of this combination can be found in the excerpt below.

1. SP2: Have you done that
2. ST2: Yes in the previous chapter
3. Sp2: In the previous chapter↑?
4. St: Yeah chapter four I mentioned that we moved from closed
5. cylinder to open cylinder and why we moved (to this
6. SP2: Yeah but) that is testing that's during the testing (0.4)
7. ST2: ***So: (2.7)***
8. SP2: It has to go (.) has to go here (0.6)
9. ST2: just take them to chapter five (.) oh ok
10. SP2: Yeah (.) it has to go here so it is in the testing phase
11. that you have discovered this

The supervisor here is questioning whether the student wrote anything about the testing procedure of the engine as it is not included in the chapter draft under revision (chapter five). After the ST2's response to the question and his expanded illustration, the supervisor produces an evaluation turn by providing a partial disagreement (Yeah but that is testing that's during the testing). In his next turn, the student uses *so* in its own followed by a pause probably as an indication of his incomprehension (Li and Seale, 2007) and hence he invites the supervisor to take the turn. Similar to the proposal by Buysse (2012), Raymond, (2004) and Sato (2019), the marker could further serve the interpersonal function of prompting action by the recipient.



Figure 6. 6: UPOH gesture with so

The turn-regulating function of *so* is also demonstrated non-verbally through the accompanying gesture. As represented in figure (6.6), in the rest position, the student's both hands are holding the pen. As he starts uttering *so*, he turns his left hands from an inward to an upward or supinated orientation with extended fingers and presenting his flat palm to the supervisor. As could probably be interpreted, the accompanying gesture has the additional meaning of showing that the student does not know how to deal with this issue so he leaves it for the supervisor to provide his knowledge and decide what should be done, hence acknowledging the supervisor's higher epistemic status (Heritage 2012a). Although the marker in itself does not explicitly contain any criterion of epistemicity, its accompanying gesture can be analysed as an epistemic gesture which participates in the conveying of indecision and confusion (Givens, 2014). This result therefore confirms with Roseano, et al.'s suggestion (2016, p. 159, see also Goldin-Meadow, 2003; Goldin-Meadow and Alibali, 2013) that "nonverbal marking of epistemicity does not need to occur with verbal correlates of epistemicity".

The supervisor next turn (line 8) demonstrates that he appropriately interpreted the student's use of so and the accompanying PUOH gesture as an invitation for an uptake,

therefore he suggests moving the section to chapter five instead of chapter four. The repetition of (has to go) three times additionally indicates that his suggestion is non-negotiable.

6.2.3.2 The case of the PUOH gesture with honestly

The PUOH gesture plays a slightly different function when co-occurring with *honestly* and this is exemplified in the following extract.

```
1. SP2:  but but in this chapter it's you experience all your
2.       experience in testing the engine maybe you think oh
3.       there is not enough I can right about on this but you
4.       can expand that to whatever you know all experience
5.       you gain and problems you encountered how you solve them
6.       and then the data
7. ST2:  because ↓↑honestly I thought just for this uh this
8.       chapter to to choose the ideal graph
9. SP2:                                  Haha
10.      ST2: (to measure the power
11.      SP2:  haha oh no no no)
12.      ST2:   How much power we got from the
13.      SP2:   No no
14.      ST2:   The engine only to maybe describe the process of doing
15.             the uh I mean the test
16.      SP2:   No no (0.2) it has everything
```

In lines 1–6, the supervisor provides a lengthy advice where he recommends the student to restructure chapter five to include all the details and experiences surrounding the testing process of the engine. This recommendation seems to be surprising to the student as it is quite different from what he has already done and expected to be right. Therefore, in his next pair turn, he discloses his thoughts (honestly I thought just for this chapter to choose the ideal graph) which is produced with a smiley face that possibly gesture his nervousness of doing the unexpected. The marker *honestly* is delivered as a

separate intonation unit with the fall-rise tone, probably “to express an implicature or a contrast” (Komar, 2007, p. 53).

Most importantly here is the student’s use of the PUOH gesture which corresponds to *honestly* with its form and orientation being similar to the previous examples (figure 6.7). However, it is function is apparently of a metaphoric type as it symbolises being open to reveal personal information and share his academic insecurity with the supervisor. Therefore, it could be seen as a clear marker of self-disclosure (Cameron et al., Childs and Walsh, 2017; Cho, 2018)



Figure 6. 7: the PUOH gesture with honestly

In response to the student’s statement, and although he keeps repeating (no) in overlap with the student, the supervisor produces laughter which is indicative of his attempt to affiliate and build rapport with the student (Adelswärd & Öberg, 1998). Once the student finishes his statement, he declares his advice firmly by stressing everything which is realised with falling intonation.

As presented throughout his discourse, ST2 tends to exhibit himself as a knowledgeable and independent student who is capable of making his own decision and taking responsibilities of his research. Yet, there are cases in which he struggles to defend

his position or make the right decision. It is during these moments of self-disclosure (Antaki et al., 2005) that such combination of *honestly* and the PUOH gesture is employed as a way of managing responsibility when some source of interactional trouble arises (Childs & Walsh, 2017, p. 191).

What has been shown in the discussion above is that the PUOH gesture can serve multiple functions rendering it highly context-sensitive. While its association with *so* in stand-alone positions reinforces the functions of the marker in turn-management and displaying the state knowledge, it is combination with *honestly* serves as a metaphoric revelation of personal shortcomings (Childs & Walsh, 2017, p. 193).

As stated elsewhere (chapter 2, 2.4.3), doctoral supervision meetings are no doubt a type of asymmetrical discourse (Grant, 2003; 2005). While the functional analyses of *I think* and *I mean* presented above reflect the student's general tendency to challenge this asymmetrical relationship by displaying a higher level of knowledge, the way the PUOH gesture is multimodally integrated with particular DMs suggests that ST2 sometimes adopt a different epistemic stance and orients to the supervisor as the more knowledgeable and authoritative expert. By applying various multimodal resources, the student continually changes "the direction of the flow of information … by adopting different knowledge stances" (Bao-Rozée, 2016, p. 183).

6.3 DMs in Supervisor 2's speech

6.3.1 But

The fact that *but* is the most frequent DM in SP2's speech is quite impressive on its own given the marker's inherited semantic meaning of encoding a relationship of contrast

(Bell, 2008; Blakemore, 2002; Fraser, 1999; Hata, 2016; Iten, 2005; Lakoff, 1971; Mulder and Thompson, 2008). From a coherence-based view, Schiffrin (1987) assigns three types of contrastive meaning to *but* which involve referential contrast, functional contrast, and contrastive actions. The referential contrast can be accounted for in terms of Lakoff's (1971) dichotomy: *semantic opposition but* and *denial of expectation*. Hussein (2008) indicates that *but* does not only indicate a semantic contrast in its linguistic context, he further assigns four functions to the marker which involve a return to the central topic of discourse, a denial-of-expectation, a simple contrast of the relation between the two utterances and a correct placement for the assumption offered in the previous message. The same view is held by Fraser (1990), Bell (1998) and Norrick (2001) who further argue that when serving a textual function, the marker tends to be unstressed, as opposite to the function of marking contrast where it is often stressed.

When considering its sequence structures, two cases are taking into account: (1) the *but*-unit is placed in turn-medial position where it links two contrasting utterances implemented by the same speaker; (2) or it may also appear in turn-initial or turn-medial places produced by the next speaker (Hata, 2018). Given the CA approach adopted in the present study, the focus here is much more on the latter where the *but*-turns is produced to create a contrastive action with the previous speaker or to regulate the ongoing talk (Mulder and Thompson, 2008).

Drawing on contextual information, the three salient functions of *but* as employed by SP2 are (1) signalling partial disagreement; (2) marking a direct contrast; and (3) indexing speaker's return to the original point.

6.3.1.1 Signalling mitigated disagreement

As has been explained in section (4.5.2), one crucial aspect of *but* is its frequent co-occurrence with other tokens (specifically *yeah*, *I think* and *I mean*) which accounts for 41.2% (42 out of 102) of all instances of the marker in SP2's discourse which proposes that it is a rather common phenomenon for the marker. This clustering tendency poses a challenge for identifying the markers' core meaning as" it is not always clear whether [the] two co-occurring DMs remain independent from each other or whether they should be considered as one token" (Cuenca and Crible, 2019, p. 172). In this regard, Hansen (1998) differentiates between *summative sequences* where the two markers retain their original meanings and *combinatory sequences* where their combination generates a new meaning.

Yet, the analysis reveals that such collocations are more likely to be applied to mitigate disagreement by signalling "nonstraightforwardness in responding" (Schegloff & Lerner 2009, p. 91). Similarly, earlier studies by Kreutel (2007), Pomerantz (1984) and Rees-Miller (2000) link the clustering of *but* with hesitation markers, fillers and token of agreement to the expression of weak disagreement whilst when used by itself it may signal discrete contrast. Willlamová (2005, p. 80) has suggested that this combination is "one of the means through which linguistic politeness can be manifested". That is, the supervisor seems to be aware that the use of direct form of disagreement can be too face-threatening therefore he relies on DMs clusters as a way to disguise the existing Knowledge asymmetry between him and the student (Bao-Rozée, 2016; Reinders et al., 2013). For illustration, consider the following two examples.

1. ST2: I think that you need even uh to look also at the

2. Springs uh the mechanical springs in the material
3. section
4. ST2: Yeah I did actually
5. SP2: You did alright that's fine (then
6. ST2: I talked) about different uh I mean different
7. types of Springs
8. SP2: → yeah but I did not see the pictures here so you
9. are only uh in terms of concentration of the work
10. only on bellows

The *but*-prefaced turns in the example above is employed to initiate a contrastive response to a previously concurrent opinion. Being clustered with yeah makes it clear that the marker is an agreement-prefaced disagreement (Hutchby, 1996). In a similar vein, in the second example *but*-prefacing in line (7) is collocates with *I think* and serve to mitigate the contrary stance.

1. SP2: ok so that's chapter four (5.5) so chapter four is
2. all about the prototype design (3.5) then chapter
3. five is testing the prototype
4. ST2: yes yes the experimental testing of the prototype I
5. started with the experimental procedures and then
6. (talked
7. SP2→ but I think) the first part should be the description
8. of the test rig uh this chapter now is only about the
9. diaphragm and the final design (2.0) I mean anything which
10. is not related to it has to go to the previous chapter

The insertion of DMs clusters in the two examples enables the supervisor to avoid imposing on the student's autonomy (Rees-Miller, 2000) and hence decreasing the face-threatening potential of presenting contrastive ideas. Being combined with *I think* gives the indication that the supervisor's claim is based on an individual and tentative judgment, in this case, he reduces the potential negative effect of contradicting (Brinton, 1996, p. 38). In addition to operating on the textual level, the combination of *but* with other

markers can be seen as means to achieve the interpersonal function of minimising the imposition of his utterance (Wilamová, 2005) which in turn brings about a sense of solidarity between the two participants expressed by the implicit hedging and weakened tone (Yu, 2009, p. 98).

6.3.1.2 Marking a direct contrast

In the second function of *I mean* (21 tokens), a shift is observed from being hesitant to being explicit and direct in expressing contrastive actions. It is in the realm of this function that the vital role of embodied conducts emerges. Consider the following example.

1.	SP2:		so four three two is the diaphragm now
2.	ST2:		Yes and that is the bellow's section and
3.			basically, here is simply describing the material's
4.			shapes and things like that
5.	SP2:	→	but but but this section needs to go to the
6.			introduction (.) you really need something like this
7.			at the beginning and then you describe each of those
8.			components so this section until here has to has to go
9.			right to section four two

In lines (5), the supervisor does not put much effort in facework as he expresses his contrasting opinion explicitly. The repetition of *but* in itself is noteworthy as it emphasises the contrastive nature of the turn (Crible & Pascual, 2019). His firm and authoritative contrastive claim is further intensified by the use of "really" and the modal verbs that indicate necessity (needs to) and the repetition of (has to) which are all produced with prosodic emphasis.

Most importantly, the multimodal analysis reveals that in nine cases, the production of the marker with this function is accompanied by a palm-down gesture which is carried out by the left hand and is performed by placing the tip of his fingers on the table and tapping in short motions usually with the fingers rather spread-out loosely (figure 6.8).



Figure 6. 8: palm down gesture with but (1)

The co-occurrence of this gesture is not limited to the marker *but*, it is found to accompany other markers such as *so* and *I think* (refer to section 6.4.3). This means that its meaning is not necessarily linked to contradiction. The question arises is what the additional information that this particular embodied conduct curries. Unlike the other types of hand gesture found in the data, the interpretation of the meaning of this hand movement poses a real challenge because there is very little if any research on this type of hand gesture that can be referred to. Based on contextual information, it is suggested that this gesture is associated with specific instances of highlighting institutionalised power and leading identity (Dong, 2009; Vincze & Poggi, 2017). The example below further illustrates this multimodal ensemble.

1. SP2: you have already selected the final (version
2. ST2: but I mean) the evolution doctor Ali not for the
3. diaphragm uh it is for the complete assembly for the
4. whole engine

5. SP2: you have listed the different types of springs,
6. diaphragms, bellows and things like that
7. ST2: um
8. SP2: → but you) have NOT finalised the design (.) the design
9. of the components
10. ST2: but I mentioned the key (components actually
11. SP2:→ but NOT) the final design (.) the final design should
12. come AFTE:R the methodology and step by step design↓

Although the marker *but* occurs twice (lines 8 and 11) in SP2's turns to signal a denial or a challenge to the student's previous points, the palm-down gesture is only produced with the second instance. Simultaneously with (but you have NOT finalised the design), the supervisor starts tapping on the table with the tip of his fingers while his palm is in a descending orientation (figure 6.9). The constant tapping with every single word in the utterance entails that it is a type of beat gesture used to emphasise the contrastive information (McNeill, 1992; Wang & Chu, 2013). However, when analysing the structure of the whole episode, one can observe an apparent interactional trouble as is indexed in the student's continuous resistance to the supervisor's evaluative feedback (Jefferson and Lee, 1981).

Given the conflicts of opinions, the supervisor, in his last turn, resorts to his institutionalised power to deliver his firm decision with higher degree of urgency and authority (Dong, 2009, p. 138). In addition to the use of strong directives and hand gesture, he ends his turn with a falling intonation at (design) which further indicates sequence closure (Erman 2001:1347) and demonstrates his intention not to obtain any confirmation from the student. Also, the use of the right hand, instead of the left, is particularly interesting here. According to Calbris (2008) the use of the left indicates non-dominant evaluation whereas the right hand is often related to dominant acts.



Figure 6. 9: palm down gesture with but (2)

The accompanying beat gestures therefore do not always "represent rhythmic nonmeaningful hand movements" (Dimitrova, Chu, Wang, Ozyurek & Hagoort, 2016), they could, accomplish other vital functions. In the example above, the presence of beat gesture with *but* serves a supplementary modal function as it allows the supervisor to enact his institutional identity by conveying his dominant status.

6.3.1.3 Indexing speaker's return

But does not always function as a contrastive marker. In 13 cases, it is found to serve the textual function of returning to the main point. The next extract presents an instance of this meaning.

1. SP2: I think if you also describe the bellow in the
2. diagram it might simplify lot of things in terms (of
3. ST2: Yes) and the diagram should be going in the beginning,
4. I think↑
5. SP2: yeah yeah (yeah
6. ST2: so someone) can see it
7. SP2: yeah yeah I I think it should be going in the
8. introduction
9. ST2: maybe in the first page?
10. SP2: no no not in the first, it is in the second in the
11. Engine design it is where there is this initial

12. diagram if it has to go it needs to be (there
13. ST2: as part) of the engine design
14. Sp2: → Yes yes but again (1.5) in that diagram you did
15. not say anything about bellows so you should include it
16. ST2: before the calculations?
17. SP2: I think before the evolution of the design because that
18. is where you were looking at different sizes

The supervisor at first inform the student that he should include the engine bellow in the diagram. Instead of responding to this suggestion, the student mentions including the diagram in the beginning of the chapter and he uses a rising intonation with *I think* to give his utterance the properties of a tag question and therefore, invites the supervisor's confirmation. After his strong disagreement (lines 10-12) the supervisor returns to his original point concerning the bellow and initiates his turn with *but* which loses its contrastive meaning and displays the supervisor's orientation to the action that left unaccomplished (i.e. including the bellows).

6.3.1.4 The meaning of Open Hand Prone gesture with but

Another type of hand gestures that co-occurs with *but* in 7 occasions is the open hand prone (vertical palm) gesture (hence OHP-VP) which is typically performed with an open palm (or both palms) being held vertically, facing away from the gesturer (Kamunen, 2018). According to Kendon (2004, p. 248), this gesture is typically employed "in contexts where something is being denied, negated, interrupted, or stopped". Two instances of this gesture are analysed below.

1. Sp2: With that one we thought that uh because you have
2. to seal that and to seal that more complications
3. ST2: Yeah I mentioned all of those things
4. SP2: Yeah yeah

5. ST2: in the design but I mean in this stage which is in
6. this part which is like the manufacturing process
7. SP2: Um
8. ST2: I mean maybe I need to describe what it have (.) has
9. been done may be in a separate section because I need
10. to (describe all these
11. SP1: → But but you) don't have to go into details because you
12. have not tested it so all you need there is
13. probably short paragraphs (.) two or three paragraphs
14. the picture of that uh you have designed it (.) you have
15. manufactured it (2.0) so there is NO point of going any
16. further

There is an episode of disagreement in this extract as the student suggests adding a separate section in chapter four to illustrate the manufacturing process, while the supervisor thinks there is no need for it to be lengthy. Although the student's turn (line 10) does not show any signal of turn-yielding, the supervisor interrupts him using the marker *but* which serves, among other functions, to compete for the speaking turn.

From line 1 to 10, the supervisor has his hands folded in the home position (McNeill, 1992) with the left elbow being instead resting against the table. In line (11), he disentangles his left hand from the folded position and lifts it up to perform the OHP-VP with the thumb extended (figure 6.10). Since the gesture is produced synchronously with its verbal counterpart while the student's turn is still incomplete, it could hence be seen as serving, alongside the talk, the primary function of regulating the turn.



Figure 6. 10: the OHP-VP gesture (1)

In this particular case, the supervisor uses his hand as a sort of barrier with the underlying meaning of stopping the action that is in progress (Kendon, 2004, p. 248; See also Tessendorf, 2016). In line with previous research (Streeck & Hartge, 1992; Kendon, 2004), the emergence of the gesture here precedes its verbal correspondence by approximately 200 ms which makes it carry the crucial content of interruption.

Noteworthy is also that the supervisor sustains his mutual gaze during and beyond the interruption which is, according to the literature on eye gaze, is not a typical pattern in cooperative overlapping speech (Zima et al., 2019, p. 65). The prosodic design of the turn (rising tone and loudness) is another decisive factor that underlines the supervisor's intention of gaining the turn (French and Local, 1983). Combining the whole multimodal features together, this type of overlap can be seen as being competitive since it asserts some kind of dominance. This particular case allows to propose that hand gesture might have an effect on the distinction between competitive and cooperative overlaps (Truong, 2013). A similar gestural pattern is found in the following extract.

1. ST2: Ok and how uh what about the holes around the (0.2)
2. SP2: yeah the same thing so you have to take the old one and
3. put (it on top

4. ST2: I mean how) to to how we are going to cut them I think
5. it is a bit uh
6. SP2: the best way is you have a cylinder rod or a pipe and
7. you heat it up to high temperature
8. ST2: um
9. SP2: and you get it through
10. ST2: oh ok
11. SP2: That is the best way if you want to have a neat hole
12. → (0.5) but you can NOT just puncture it (.) you can't
13. puncture it (.) if you puncture it you damage it

Dissimilar to the previous example, this extract does not contain any interruption or disagreement. In lines (6-10), the supervisor summarises the best way that should be followed to cut the diaphragm and make it square in shape. After a short pause (line 12) and while the supervisor's current turn is still in progress, he employs the marker *but* with its simultaneously accompanying gesture which preface a specific action that should be avoided (you can't puncture it). He further reinforces the epistemic strength of his utterance by using the intensifier just, repeating his previous utterance, and giving a justification for this avoidance by providing a dispreferred subsequence (you damage it). Therefore, the function of the gesture here can be interpreted as implying the meaning of restriction or preventing a particular action from happening. Similar to the previous example, *but* here is associated with a significant change in the intonation pattern.

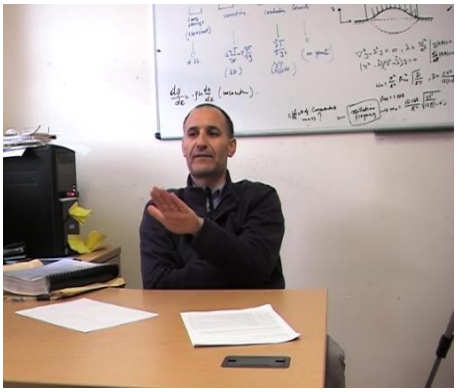


Figure 6. 11: the OHP-VP gesture (example 2)

However, the micro-detailed analysis of the discourse contexts in which the seven instances of this gesture take place reveals that it is always associated with different negation expressions. In the first extract, for instance, the gesture is followed by (you don't have to) and (there is NO point), whereas in the second it precedes (you can NOT). No and not are also intensified by stress and falling intonation. The gesture therefore is most likely to be related to the higher abstract notion of negativity (Inbar and Shor, 2019, p. 93, see also Harrison, 2009, 2013; Harrison and Larrivée 2016).

6.3.2 The role of duration in disambiguating the functions of *well*

The previous chapter (Section 5.2.1) has shown that SP1 mostly uses *well* for multiple functions which include prefacing dispreferred response, initiating self-repair and signalling topic shift. To a large extent, the analysis of its use by SP2 suggests a very similar pattern. Additionally, when measuring the duration of all instances of the token in Praat, it has been observed that the two supervisors tend to have relatively longer duration (average 0.769 s for SP1 and 0.412 for SP2) when serving a repair function. As an example, consider the following two extract from SP2's speech.

1. ST1: I wish if I could finish it before uh even before my
2. visa expires
3. ST2: I mean in that case let's aim to submit the thesis by
4. say end of August, and then the viva will be around
5. September uh well (2.55) may be the beginning of
6. October

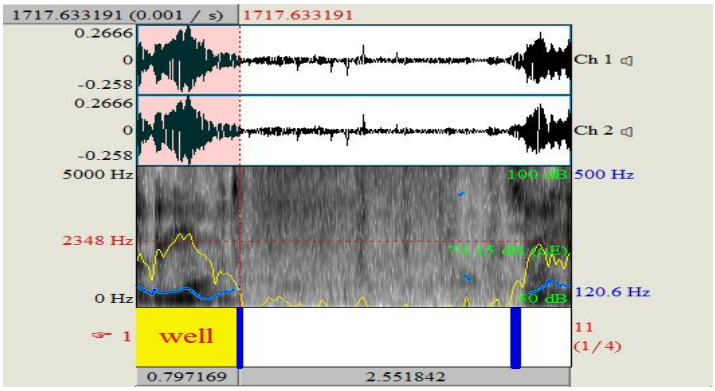


Figure 6. 12: duration of well (example 1)

The two participants here are discussing possible dates for the final submission of the thesis. In line 5, SP2 initiating self-repair by replacing *September* with *October* probably because the decision of the viva date is not merely his own so any point in time he recommends will not be definite. As shown in the figure above, the duration of *well* is (0.797 s) and followed by a lengthy pause of (2.55 s). A similar pattern is also evident in the next extract.

1. Sp2: so we will meet on the twenty first
2. SP2: yeah
3. SP2: so if I have some time uh I am not promising anything
4. (0.2) I might just try to modify the existing paper and
5. uh because (it's
6. ST2: ok maybe) I'll try do something uh and send it (to you
7. SP2: yeah because it is only three uh well (1.11) maybe
8. five or six pages isn't it?
9. ST2: for the sterling?
10. SP2: yeah
11. ST2: it is up to thirteen I think

12. SP2: really? It is bigger↑

13. SP2: probably yeah

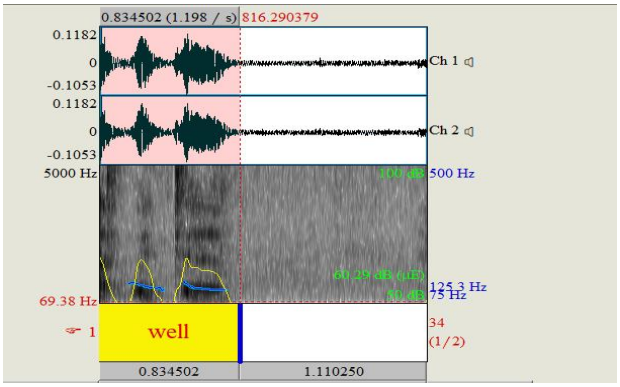


Figure 6. 13: duration of well (example 2)

In this instance, self-repair also occurs at the lexical level as *well* is positioned after the repairable segment (three)and is followed by the repaired segments (five or six).

When considering their pragmatic function, the two tokens clearly fall under the cognitive category, but at the same time they could serve several simultaneous sub-functions (e.g. Self-correction, denoting thinking process and Hesitation). If a merely monomodal analysis is adopted, one could argue that the two markers are primarily indicating the initiation of self-repair. However, when considering their duration and the lengthy pauses that follow, it becomes clear that their core function is to "denote the thinking process" in structuring the utterances (Fung and Carter, 2007, p. 415). The analysis of duration, therefore, may provide additional information about the communicative meaning of the marker which, in turn could have an influence on the multifunctionality of DMs.

6.4 DMs in different types of speech-exchange systems

This section focuses on the role of multimodal DMs in different types of speech-exchange systems. As indicated elsewhere in this thesis (Section 3.3.2), a bottom-up exploratory approach is adopted in which, and after watching the videos repeatedly and examining the transcripts carefully "academic functions [are] ascribed to stretches of talk" (MacDiarmid 2017: 107) according to the criteria put forwards by Walsh and O'Keeffe. Although the investigation into talk-in-interaction could be approached from different angles, an additional emphasis here is on the epistemological level which is deemed to be the most pertinent to supervisory discourse considering its underlying knowledge-making practices (Björkman, 2015; 2017). It is also vital to keep in mind that in many cases it was difficult to draw a clear-cut line between the four systems, especially in the case of organisational and instructional talk since some episodes could be interpreted as having values of more than one type.

6.4.1 Manifestations of power in organisational talk

According to Walsh and O'Keeffe (2012, p. 170), the organisational talk is likely to be more teacher-led (in this case supervisor-led) and is typically related to the pedagogic goal of informing students "about different procedural matters". In the current analysis it mainly involves discussions on the organisational structure of the written drafts of the thesis chapters. It was shown in the analysis above, (particularly sections 6.2.2.2 and 6.2.2.4) how the supervisor sometimes appears authoritative and pushes the student to specific actions in order to lessens the chance of any resistance. The two stretches of talk below further exemplify this point.

1. SP2: what about the bellow parameters you (selected?
2. ST2: yes), it is in the table as well
3. SP2: (0.5) so everything is included in (the table?
4. ST2: yes) yes
5. Sp2: (1.5) well (5.0) it has to move to the final design
6. once you describe the final design then all the
7. parameters for the bellows and for the diaphragm have
8. to(.)have to go into there(.)into that (section
9. ST2: yeah so) you mean Dr Ali that is those part should go
10. to the third (scheme
11. SP2: Yeah) yeah yeah because that is the one you will say
12. you selected for the design **I mean** uh to ME this
13. makes quite a good structure↓
14. ST2: Yes

The discussion here is about the general outline of chapter 3, more specifically, on the place of the bellow parameters which, as the student states, is currently presented in the table. The extract takes the form of an IRF (initiation–response-feedback) pattern as it starts with a question posed by the supervisor which makes the discourse look more dialogic (Farahian & Rezaee, 2012). After the student's answer, SP2 asks a conforming question prefaced by *so* and a delay of half a second. In line (7), the supervisor draws upon his knowledge primacy by offering an authoritative evaluation of moving the part concerning parameter to the section that discusses the final design. He initiates his turn with *well* which foreshadow the upcoming of dispreferred response or a problem of intersubjectivity (Heritage, 2017).

The fact that the marker is preceded and followed by pauses of different lengths gives credibility to this suggestion (Etehadieh & Rendle-Short, 2016, p. 172). Following this utterance, the supervisor then speaks comparatively faster and with hardly any fillers which could display his higher epistemic status. The repetition of a stressed "*have to*"

twice conveys firmness and decisiveness as well as reduces the degrees of freedom for the student to reject.



Figure 6. 14: SP2's head tilting in a downward direction

Yet, the verbal mode is not the only source of this authoritative stance. The multimodal analysis reveals that as the supervisor utters the marker *well*, he tilts his head to the right in a slightly downward manner. Although no definite decision can be made as to the precise function of this accompanying gesture given its infrequent occurrence (only two instances), very recent research by Witkower and Tracy (2019, p. 894) found that "tilting one's head downward (compared with a neutral angle) increased perceptions of dominance". This is consistent with the evolutionary perspective proposed by Van Vugt and Grabo (2015) who suggested that tilting the head down is a possible factor that could increase influence leadership perceptions.

However, other studies (e.g. Bee et al., 2009; Burke & Sulikowski, 2010; Mignault & Chaudhuri, 2003) have offered conflicting results claiming that tilting the head up could increase perception of dominance. Bearing in mind all the modes of interaction, the head movement here is more likely to be of a dominant type and thus it contributes to the authoritative role of informing. The falling final intonation on *good structure*↓ typically conveys a bias or certainty toward the proposition expressed by the speaker and it is

therefore another signal for the assertive meaning of the whole turn (Reese & Asher, 2007).

With regard to the student's response, line (9) shows that he receives the direct guidance in a verifying way by 'synthesising the feedback comments' (Xu and Hu, 2019, p. 8) in a clear recognition of the supervisor's knowledge primacy. Goodwin and Goodwin (1987) describe such repetition of all or part of a prior speaker's utterance as "format tying" used to indicate understanding and create connections with the interlocutor. The student's general tone is a collaborative one, as he repeatedly overlaps with Sp2' talk with response tokens which highlights his active listenership (Knight, 2011; Knight & Adolphs, 2008).

Another episode of organisational talk is presented in the following extract in which the marker *I think* is accompanied by a chopping gesture.

1. SP2: is it how you did it previously? because it
2. Cha:(nged
3. ST2: yeas↑) I did I uh change it many times (because
4. SP2: Yeah↑ you) change it many times
5. ST2: yeah because (0.3) uh sometimes I feel it is uh
6. it is necessary to talk about component
7. first and sometimes I feel that (0.5 it is to
8. introduce uh because (1.0) er I am a little bit
9. (confused
10. SP2: ***I think) I think we need the figure here we do need***
11. ***we*** do need the general structure what we want as a
12. design we know that is is sterling engine we know
13. that different types but we NEED that picture of
14. general configuration here so
15. ST2: oh ok

Here, ST2 is talking about the changes he made to the organisation of the chapter, more specifically, about his uncertainty as to what section should go before the other. His turn (lines 5-11) is considered disfluent due to the occurrences of filled and unfilled pauses and cut-offs (Crible, 2016). In line (10), the supervisor produces an overlapping utterance initiated by the marker *I think* which is repeated twice probably to stress self. He then switches to the plural *we* to include the student and make the overlap less competitive for the purpose of mitigation (refer to 6.4.3).

When it comes to analysing embodied resources and as clarified in the figure below, the gesture that co-occurs with the DM *I think* in the overlapping utterance is the chopping gesture. Before the overlapping speech and prior to the gesture (i.e. the home position or the rest position), the supervisor was folding his arms with the right hand downward. When he starts to initiate his overlapping turn, he moves his hands to form a chopping gesture with the fingers tight to each other. He then moves his hands up and down three times with the second occurrence of *I think*, *we need the figure here* and *we do need the figure*. These repetitive moves give the gesture a beat-like property that operates to emphasize his point. The intensity is somewhat high at the overlapped utterance which further propose that his overlap was projected to bid for the floor and therefore it is considered a competitive type of overlap.

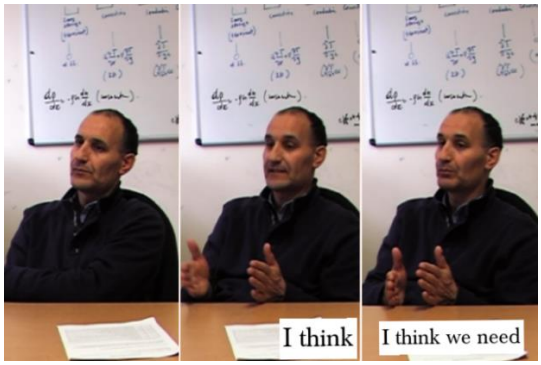


Figure 6. 15: SP2' chopping gesture with I think

This observation, therefore, confirm the finding presented above in section (6.2.2) which proposes that when the marker indicates strong opinion, it tends to be accompanied by a chopping gesture which reinforces its meaning. Given the recurrent use of this combination by the two participants in this case study (13 in total), further exploration of this type of gesture by other speakers is required to determine the extent to which it is accounted for signifying decisiveness and performing the action of asserting. Another critical point that can be inferred from this observation is that the lack of gesture could also be meaningful in understanding the function of DMs.

While in the preceding examples the supervisor asserts his authoritative role overtly through multimodal ensembles (Kress, 2010), a different scenario is observed in the following example as the supervisor opt for a subtle way of informing the student by softening the way he delivers his evaluation.

1. ST2: I received an invitation from the university for the
2. engineering postgraduate research showcase
3. SP2: Yeah
4. ST2: So what do you think is it worth to participate or
5. SP2: I am not sure(.) I have a mixed uh well (0.5) previously I
6. had two PhD students participated in that uh is that

7. something you have to present or just posters?
8. St2: yeah, I think it's it's mainly posters
9. Poster yeah, I mean with a poster you can produce a poster
10. and participant if you want but I mean as I said before
11. you are at the stage where you don't want to distract
12. yourself from other issues (0.5)
13. ST2: yeah (but
14. I think) er at this stage your concentration is on writing
15. the thesis rather than you knows occupying yourself with
16. other (things

The discussion her is about participating in a postgraduate engineering showcase. Interestingly, the supervisor responds with "I am not sure" which has the literal meaning or the locutionary act (Leech, 1980) of displaying uncertainty. It is further followed by "I have mixed uh" which is an additional signal of indeterminacy. Nevertheless, the illocutionary act performed in saying this utterance is to show disagreement which is revealed in his subsequent turns.

In line (10), SP2 uses the hypothetical 'if you' to encourage the student to participate in decision-making (Heron and Webster, 2019, p. 362) but then he implicitly indicates his rejection in the utterance initiated by "*but I mean*". The same justification is repeated in lines (15-16) using a paraphrased turn initiated with "I think". The supervisor thus provides his answer by means of indirect speech acts (Searle 1975). Interestingly, this occurrence of *I think* is produced in the absence of any type of hand gesture.

6.4.2 Instructional talk and the bodily expression of being precise

The second integral type of speech-exchange systems is instructional talk which is here constructed around sequences of direct or indirect advice. One particular DM that occurs repeatedly in this type of talk is the marker *so* which marks a very precise part of

the instruction. An extract from the transcriptions is presented below to illustrate its multimodal use with this type of talk.

```
1. ST2:   but the difficulty I faced for this equation I did
2.        not find any link to understand this equation
3. SP2:   yeah I mean if you look into uh oscillating
4.        frequency of mass suspended by a spring
5. ST2:   umm
6. SP2:   so if you have a mass uh have a spring with a mass
7.        uh so what is the natural frequency of that
8.        mass vibrating
9. ST2:   yeah
10.     SP2:   if the spring mass is important then you have to
11.            take into account the spring mass
12.     ST2:   (1.5)
13.     SP2:   So it has to be the spring to that mass plus
14.            the effective mass of the spring
15.     ST2:   (2.6) yeah yeah
```

In this extract, the student requests an advice from the supervisor in an indirect way by explaining his difficulty in understanding the equation he works on. Throughout his turn, he avoids making any eye contact with the supervisor, instead he keeps looking at the computer screen. In lines (3-11), the supervisor tries to clarify the equation by describing a series of steps to follow. The supervisor seems to recognise that the student may not get his point given his long pause at line (12), therefore he synthesises his instruction with a so-prefaced utterance which can be interpreted as having both an attention-calling and summarisation functions. As he utters *so*, he executes a precision-grip gesture (Kendon, 2004; Lempert, 2011; Calbris, 2011; Refer to 4.5.3) which he holds until the end of his turn. The recurrence of the same gesture over the stretched discourse provides what McNeill (2000, p. 316) referred to as “a gesture-based window into discourse cohesion”.



Figure 6. 16: SP2's precision grip gesture with so (example 1)

Since the supervisor here introduces information that is considered to be unshared with the student, the production of this gesture with the marker *so* may allow him to notify the student that this is the finer and really important point of his instruction which the student should pay attention to. Moreover, it helps the supervisor expresses his ideas with great exactness. After completing his turn, the supervisor's hand returns to the rest position while fixing his gaze on the student giving him some time to reiterate the information. The supervisor intention seems to be understood by the student who, after a lengthy pause (line 15), responds with a head nod and a repeated *yeah* which entitles his understanding of the knowledge being shared. Another example of this combination is provided below

1. St2: so now what about chapter five what do you think?
2. Sp2: chapter (five
3. St2: I only) put the title and some references anyway
4. Sp2: so where is chapter five?
5. ((looking at the screen and scroll down))
6. St2: it is there yeah
7. ((pointing at the computer screen)) I just started to
8. put just the title and to (start
9. Sp2: yeah)
10. St2: thinking of what shall I do
11. Sp2: so so so in chapter five again your full testry

12. pictures go in There with your microscope, uh not
13. microscope (oscilloscope
14. St2: Oscilloscope)
15. Sp2: I mean all your testing equipment needs to(.)need
16. to be there then your previous diagrams captured
17. from the oscilloscope, so you need all the
18. process of making it work
19. ST2 OK

As most of the interaction in the data, this extract is structured around sequences of questions and answers. The student seeks advice in the form of an open question initiated with the referential *so*. The supervisor then directly gives his instruction without any preparatory work. He further summarises his point (line 15) prefacing his speech with *I mean* which functions as a clarification marker. To assure the student's understanding, the supervisor provides another summary with the so-prefaced utterance. The supervisor's both hands were gesticulating while listing the points that need to be included in chapter 5. The beat gesture is performed by opening his left hand flat and repeatedly tapping its palm with the fingers of the right hand (figure 6.17).



Figure 6. 17: SP2' precision grip gesture with so (example 2)

This repeated gesture movements stretches over the supervisor's speech from line 11 to 16. Additionally, SP2 was sometimes closing his eyes or looking away from the

student which indicates thinking process while speaking. Most importantly, when he begins to give the second summary of his argument (line 17), he starts raising his left hand in high position in the air and performing a precision grip gesture which has clearly fallen on the marker *so*. The student then acknowledges the advice with the acceptance token *Ok.*

In brief, what is consistent across all occurrences of the marker *so* with the precision grip gesture (9 instances by SP2 and 3 instances by SP1) is that it comes after a lengthy explanation in order to synthesise and summarise a point made during the introductory talk. In other words, it takes "an idea originally expressed in more than one unit and condenses the idea into one single unit" (Müller, 2005, p. 78).

6.4.3 Discursive talk: Creating a sense of collectively

Although O'Keeffe and Walsh (2012, p. 173) use the term discursive talk to refer to interactions where the tutor encourages the student to "describe personal experiences, reflect on feelings or attitudes towards a particular phenomenon", this type of supervisor's talk was not evidently present in this case study. Yet, when analysing the data, the concordance of specific DMs, namely *so*, *I think*, *you know* and *but*, generated 102 (24.2%) entries in which these markers are clustered with the plural pronoun *we* which make it a very distinctive phenomenon. According to Quirk et al (1985), the use of this pronoun can have many denotations with positioning oneself in relation to the addressee lies at the heart of its various meanings. Íñigo-Mora (2004, p. 34) argues that "*we"* can refer to the hearer in either an inclusive or an exclusive manner. In the former, the pronoun can establish a feeling of solidarity and reduce FTA, whereas the latter meaning implies

distancing and shutting the addressee out of the discourse which is therefore linked to power (Smith, 2008, p. 401).

The following two episodes demonstrates how the supervisor uses the clustering of (DM + we) to align with the student and invoke a sense of togetherness and shared community (Carter and McCarthy, 2006, p. 284).

1. Sp2: and then you are talking about solid power piston
2. uh the linear and (the diaphragm
3. ST2: the diaphragm)
4. SP2: so with the linear uh let's look at the linear
5. ((turns to the computer screen and scrolling down))
6. that's the linear
7. ST2: Yes
8. SP2: Ok so with the linear and the diaphragm type the
9. displacer assembly is the same isn't it?
10. ST2: um yes uh more or less
11. SP2: So we are using the slide type, for the linear uh
12. for both of them↑
13. ST2: Exactly yes
14. SP2: So **so) we** have two designs, right?

As is evident from the extract, the supervisor uses two types of subjective pronouns interchangeably. He begins by addressing the student on a personal level using *you* in order to refer to his identity as the writer of the draft and thus assign authority and personal responsibility to him (Håkansson, 2012). He then moves to talk about the design of the engine using *so*+ *we* cluster (lines 11, 14) to indicate a sense of involvement. By using "we", rather than "you", the supervisor is attributing shared ownership by placing himself as a member of the collective group. The switch from a declarative to an interrogative turn design in lines (9-11) further highlights the supervisor's effort to "draw out some kind of verbal or emotion response" (Royce, 2005, p. 23) as well as to show

equality by placing the students as sharing knowledge and hence adopting a more cautious interrogative (K−) stance (Drew, 2018, p. 175).

Thus, the supervisor's use of (so + we), could indicate, to a certain extent, his orientation towards creating a collective identity (Wales, 1996; Bramley 2001). This makes the combination very useful in bringing "identities into being in the here-and now of interaction" (Antaki, 2013, p. 4). Similarly, the personal pronoun collocates with *I think* in the following extract.

1. SP2: What about the silicone diaphragm we ordered do you
2. remember that?
3. ST2: Yes I remember yes
4. Sp2: I need to attach that one before the meeting as well
5. so the next uh the meeting I have with him is on next
6. Thursday here so anyway, I think I should take
7. that silicone diaphragm and cut it because I **think we**
8. can make two of them↑
9. ST2: Yes exactly yes

Prior to this episode, the participants were discussing a visit by a colleague from another university. The turn is initiated by a question which gives credit to the student's epistemic access. the student answers the question with a confident confirmation plainly reinforced by the repetition of *yes* and the clear voice. SP2 then proceeds to explain what he should do before the meeting in which he repeats the pronoun I four times. This pronominal choice makes it feasible for the supervisor to demonstrate personal commitment and institutionalised responsibilities. He then changes the topic by using a combination of two markers (so anyway) which is a standard topic transition marker (Couper-Kuhlen, 2004).

This topic change is an essential indicator of epistemic authority. Before terminating the turn, he uses (*I think + we*) in an attempt to reduce the power inequality and create a sense of community (Heron and Webster, 2019). This use of the two markers is particularly noteworthy as it exemplifies how SP2 at times tries to avoid being too authoritative by displaying potential shared access to knowledge and joint ownership of the thesis (Silverman, 1987). As noted above, the choice of a rising tone at the end of the turn further implies that the supervisor is inviting the student to reflect and engage in the discussion. Once more, ST2 strongly agrees with SP2 with a repeated and emphasised *yes* uttered with high intensity.

When considering the embodied resources (figure 6.18), the two occurrences of *I think* are accompanied with two different hand movements which seem to be relatively different in meaning from each other. Firstly, with *"I think I should make",* the supervisor produces a palm-down hand movement (which occurred seven times with *I think* in SP2's data) which is performed by right hand (cf. section 6.3.1.2). Being accompanied with downward gaze directed to the hand, stress and a high volume, this type of hand movement is interpreted by Givens (1976, 2002), as "mildly assertive expressions of confidence that communicated possibly a sense of certainty".



Figure 6. 18: hand gestures with I think

As he utters "*I think we*", the supervisor concurrently changes his hand movement and produces a version of the PUOH gesture (see 6.2.3). He also changes his head position so as to modify gaze direction and start establishing mutual gaze which lasts until the end of his turn. The variant that the supervisor performs in this example belongs to Palm Addressed type since it is directed towards the student and hence is employed with the core meaning of offering, giving or requesting the receipting of something. Müller (2004, p. 233) further indicates that when performing such gesture, the speaker is inviting the interlocutor "to take on a shared perspective".

Other versions of this gesture type are used with similar functions in many sign languages including the American (Conlin, Hagstrom, and Neidle, 2003) and Turkish Sign Language (Zeshan, 2006) which is carefully coordinated with inclusive meaning of "I think + we" explained above. In light of this result, it could be suggested here that the different modes are orchestrating "into a coherent multimodal ensemble" (Valeiras-Jurado, ruiz-Madrid & Jacobs, 2018, p. 93).

To sum up, although in organisational and structural talk, the supervisor repeatedly positions himself as having the higher epistemic status by informing and guiding the

student towards particular content knowledge, in the two episodes of discursive talk presented here, it is more likely to see the supervisor attempts to make his turns less authoritative by building shared knowledge.

6.4.4 Argumentative talk and the management of (dis)alignment

This section introduces two episodes of argumentative talk through which ST2 and SP2 aim to achieve the pedagogic goal of developing criticality and provoking the most discussion (O'Keeffe and Walsh, 2012). Accordingly, this type of talk does not merely involve sequences of questions and answers but it can also include the participants' agreement or disagreement, offering affirming or differing suggestions, supporting one's stance by elaborating on earlier Reponses (MacDiarmid, 2017, p. 92). Consider the following example.

1. SP2: so I will cut it and make one diaphragm and try to
2. attach that and see what uh cause I feel I think it
3. is stronger uh that is why uh it is stronger it will
4. give you better stability I think it's double the
5. thickness isn't it?
6. ST2: More than double it's it's *TOO* thick that is why I
7. Think it is difficult to make it work because it's
8. too thick I think that is (why
9. SP2: oh no)(no no
10. ST2: just just) this morning I was thinking of this
11. diaphragm
12. SP2: um
13. ST2: this morning when I came to the office, I was
14. thinking that I haven't done anything with
15. this (diaphragm
16. SP2: uhm
17. ST2: I was thinking it is thick diaphragm and I feel it
18. is difficult uh to make it (work
19. SP2: no no no don't look at the thickness you know it is

20. flexible diaphragm uh there is no problem there as
21. long as there are enough forces, we can make it
22. move uh that's why we opt to it for that uh because
23. it gives us more stability so that's that's the
24. only you know that is the reason so when you
25. increase your thickness you should increase your
26. frequency and reduces the uh the adding
27. ST2: so the mass added as well to the diaphragm↑
28. SP2: yes yes
29. ST2: oh ok

The argumentative talk here is around the silicone diaphragm as the supervisor thinks it is double the thickness, but the student disagrees with that. The student's way of contradicting is very interesting here as he seems to claim a K+ position (Heritage, 2012b) through unmitigated disagreement (Björkman 2015). He displays his strong contradicting stance using several resources of assertions which include a declaratively designed turn, mutual gaze, the loud voice in the overlapping talk, the repetition of *it's*, the stress on the two occasions of *too thick* and *I think,* and the use of final falling intonation. Additionally, he ignores the supervisor's bid of the turn at line (9) when he tries to interrupt using the repeated dispreferred minimal response token (Jefferson, 1984) and instead proceeds with his knowledge claim restating almost the same point and asserting himself as the joint holder of the decision making (Lindström and Karlsson, 2016).

In his response, and despite the presence of tokens of *passive resistance* (Heritage and Sefi, 1992, p. 399) the supervisor (lines 12 and 16), establishes congruency between his epistemic authority and the students' epistemic access in two steps. First, he seems to be aware of the student's knowledge gap therefore he produces a lengthy explanation as an evidence of his knowledge primacy and access. At the same time, and through the

insertion of *you know* in two instances, he orients to the student' claimed knowledge by making his upcoming utterance look commonplace (Ekberg and LeCouteur, 2015) and thus constructing a "homogeneous epistemic status" (Heller 2017, p. 169). This combination opens the way to the supervisor to create a trouble-free discussion. Throughout the supervisor turn, the student was nodding his head as a type of nonverbal backchanneling.

What is salient in this episode is that a more symmetrical conversation is taken place as the two participant "give and take" (O'Keeffe & Walsh, 2012, p. 176). At the end of the episode, the two participants seem to reach a jointly constructed conclusion (Komori-Glatz, 2018, p. 300) that "the mass added as well to the diaphragm".

The following extract provides a rich example of one of the four cases found in which an argumentative talk contains an interplay of multiple modes.

1. SP2: but overall, (0.2) I mean when you say a chapter is
2. finished 0.1) you want to see it like a really good
3. story there (.)I will start reading it I will (.)I will
4. appreciate how things are organised uh (0.2) it is the
5. narrative of the(.)of the chapter that's what I want to
6. see (0.2) uh at the moment sill uh it has not
7. really (0.5) ***I mean all the elements are there*** (0.2) but
8. but but the writing of uh(.) presenting Those elements
9. still I think needs a little bit of work
10. St2: (0.5)ok but up to uh I mean now let's say up to the
11. Displacer
12. Sp2: yeah
13. St2: I think I went through those
14. Sp2: no no (no
15. St2: for) me I think I went through them
16. Sp2: um
17. St2: and I feel it is uh I mean uh it's sensible now
18. Sp2: yeah

19. St2: but the rest of the chapter yes it needs more uh
20. more work
21. Sp2: yeah

The argumentative talk in this extract takes the form of extended sequences of negotiating. The supervisor starts the exchange by placing an introduction to his negative feedback and talking generally about the best way to finish a chapter, hence depersonalising his speech (Weatherall, 2011). As mentioned earlier, the switch from *you* to *I* is also profound as it signifies a transfer of responsibility. At lines 6 and 7, he then shifts the topic of the talk to provide his critical point by stating that chapter five still needs a lot of work.

What is striking here is the total absence of any verbal or nonverbal backchannel signals from the part of the student despite the supervisor's lengthy turn and the frequent reoccurrences of pauses. Additionally, throughout the supervisor's turn, the student fails to establish any mutual gaze, therefore he is not engaged in an embodied participation framework (Goodwin, 2000). This might be looked at as a sign for problems of reception (Zeevaert, 2007, p. 118) and interactional disagreement (Li & Seale, 2007, p. 518) which implies that ST2 holds the assumption that what SP2 is saying is a source of trouble (Beerkens, 2010, p. 164).

Obviously, there is an issue of face here as well. As Ferenčík (2005, p. 74) points out, "the preference system of repair and awareness of the mutual vulnerability of participants' faces are closely linked". The supervisor seems to be aware that a trouble source is there, thereby he tries to temporarily delay the critical argument by preceding it with mitigating strategies such as hesitations and repetition (Kuo, 1994).



Figure 6. 19: SP2' leaning forward gesture

Before delivering the critical comment, the supervisor inserts "*I mean all the elements are there*" for face-saving purposes in order to 'sugar the pill' (Hyland and Hyland 2001, p. 185). *I mean* hence serves a gap-bridging function (Drew and Heritage, 1992) that projects repair and formulate an upcoming adjustment (Fox Tree and Schrock, 2002). Through the praise utterance, the supervisor implies his intent to communicate his argument in a way that acknowledges the student's work.

More importantly, the praise utterance is produced as part of an embodied turn (Mortensen, 2016). As an intimacy-building strategy and in order to ensure the scaffolding of the interactions, the supervisor leans his body forward before uttering *I mean.* Indeed, the temporal analysis indicates that all instances of leaning forward gestures throughout the data (11 instances) occur before the accompanying DM by an average of 412 ms. The postural shifts as well as a fall-rise tone are likely to mirror the supervisor's orientation towards congruency as he attempts to "create a bond" with the student to help him perceive the critique "as being on [his] side" (Garcia, 2017, p. 495). Taking together, this combination of multimodal resources is a useful tool in creating some degree of connection and mitigating the power asymmetry (Arundale, 2010; Don & Izadi, 2011).

After showing support for the student by praising his work, the supervisor moves to alleviate his concerns (Svinhufvud et al., 2017), with the help of *but* that is repeated three times as an assertive action in order to project contrast from the prior utterance. In response to this, the student starts his turn with a long pause (line 13) to mark his confrontation with the supervisors' critical comment. He then defends his positions against the criticisms by taking increasing responsibility for his research and articulating his own voice (Coffin and Donahue, 2012).

To sum up, the two episodes above shows that through the use of multimodal DMs, the supervisor creates a relatively trouble-free environment as he aligns with the student in a delicate and gradual way. In line with O'Keeffe and Walsh (2012, p. 176), argumentative talk tends to take the form of dialogic symmetrical exchanges which gives their supervisory discourse the characteristics of expert-to-expert rather than expert-to-novice. Since intersubjectivity may break down due to the act of criticism, it is restored by congruent body movements and instances of appraisal. The use of multimodal DMs therefore helps the supervisor to maintain a constructively cordial relationship with their students (Li and Seale 2007, Wisker 2001, p. 29).

6.5 Concluding remarks

This chapter examines the interplay between DMs and embodied conducts in the two supervision meetings between ST2 and SP2. The most frequent DMs and recurrent gestures are selected and analysed as representative cases of the interaction.

In general, through the use of *I mean* and *I think,* ST2 displays the tendency to make his talk explicit and resolve problems of understanding which signals his declared

intention of enhancing communicative clarity. He also shows increased knowledge and confidence to make his own decisions and participate in the discussions "on a more equal footing with the supervisor" (Benmore, 2016, p. 1261). Even in cases when the supervisor sounds authoritative and exercises his power, ST2 finds ways of pronouncing his autonomous stance and defend his work.

On the other hand, the analysis of the use of *but* by SP2 reveals the constant occurrence of episodes of disagreement between the two participants which are specifically employed to achieve the pedagogical aim of ensuring a successful outcome of the research as well as developing student's criticality. The analysis also presents fewer instances where the supervisor invokes his institutional power as a way of managing critical decision-making and epistemic responsibilities within the discussion. Although conflict has been identified in the literature as a prospective problem related to the act of disagreement (Knapp, 2011; McQuade et al. 2018; Roberts-Miller, 2003, Sifianou, 2012), the way the participants disagree with each other in the data did not necessarily result in impoliteness or disaffiliation and therefore "does not need to be seen as a dispreferred conversational phenomenon" (Björkman, 2015, p. 209).

In explanation of the role of embodied resources, four distinct phenomena are worth mentioning. First, the analysis of *I think* and *but* clearly confirms that embodied resources, particularly hand movement, can be significant in disambiguating specific functions of the two markers. Second, there is an impact of duration length on disambiguating various cognitive sub-functions of the marker *well*. Thirdly, the OHP-VP gesture is found to accompany instances of *but* that imply negation or restriction as part of their procedural meaning.

Moreover, although the creation of an authorial voice or stance is much more pervasive in ST2, which is realised through a wide range of multimodal resources, there are cases when he discloses his insecurities by performing an open hand gesture with the markers *so* and *honestly*.

In short, through the use of multimodal resources the two participants manage to adopt different ways in which they either intensify or mitigate their power asymmetry, institutional role and epistemic stance based predominantly on the pedagogical functions instantiated and communicative purpose at hand. The orchestration of various modes is thus a vital factor that helps the speakers highlight additional information to support their position and manage the interactional complexity of their interaction. Thus, DMs are better described from a sociopragmatic perspective which O'Keeffe, et al. (2011, p. 138) describe as "the knowledge of how to select an appropriate choice given a particular goal in a particular setting".

Chapter 7: General discussions and concluding remarks

This final chapter presents a summary of the main findings with reference to the main research questions. Key themes that were present across the analytic chapters will also be explored with specific attention on the role of DMs in capturing the complex and dynamic nature of supervisory discourse. Section (7.2) then offers a holistic view on DMs (Cook, 2011, p. 434) by moving from "the smaller interaction orders" to the broader social orders (Jones, 2016, p. 43) and proposing two potential factors that might account for differences in the use of DMs between the two group participants. Section (7.3) highlights the potential pedagogical implications, and finally, in Section (7.4), a brief account of the limitations of the study is offered along with suggestions for how they might be addressed in future research.

7.1 Summary of main findings

Conducted within a combined multimodal Corpus Linguistics and Conversation Analysis framework, the aim of this study is three-fold. Firstly, it set out to investigate the role that DMs play within the context of face-to-face doctoral supervision meetings. As the interpretation of DMs is intimately entangled with context, the second aim of the study was to contribute to current knowledge on the impact of situational context on DMs' use. Thirdly, it aimed to explore how a multimodal analysis may contribute to the understanding and disambiguation of DMs' functions. Consequently, the next three sub-sections attend to these aims respectively. Yet, it is worth reminding ourselves that as

meaning resides in the speaker's mind, all the analyses provided throughout the analytic chapters are a personal endeavour to reconstruct the speaker's intended meaning by giving more considerable attention to the contextual cues provided by the embodiment of the markers as well as their surrounding utterances.

7.1.1 RQ1: What are the range and variety of DMs used in the current data?

The analysis of the 1749 instances of DMs has shown that they were more frequent in the speech of the two supervisors (68.7%) than the two students (31.3%) which is not surprising given the supervisors' longer talk times with an average of 63% as opposed to 37% by the two students. This is corroborated in MacDiarmid (2017) who found that almost two thirds (61%) of DMs in his data are utilised by the supervisors. Considering supervision as a form of teaching (Lee, 2012), the result is in line with research on classroom environments which argues that when it comes to the use of DMs, there is often a variation in favour of the teachers (Castro, 2009; Vickov & Jakupčević, 2017). Anderson et al. (2006, p. 164) link this to the role of the supervisor as a gatekeeper "which entailed the need to take actions to ensure that the dissertation was research worthy". As institutional representatives, the supervisors play the prominent roles of "organising the conversational structure, questioning, evaluating and suggesting" (Dong, 2009, p. 226)

Yet, the results show that there was not much variety in terms of the supervisors' use of the top DMs with three markers (*so, but, well*) accounted for almost 47% of all the identified items in their speech whereas in students' data, the same percentage was accounted for with the use of eight different items. The predominance of *so* and *but* was discussed in terms of their functions which commonly fell under either referential or

structural categories and used to refer to the contents of discourse directly (Aijmer, 2002). This is further seen as indicative of the supervisors' orientation to create discourse connections and "facilitate smooth interpretation of the flow of discourse" (Ament, 2018, p. 91) which are anticipated roles from the supervisors to perform (Halse, 2011; Kiley, 2011). Another suggestion for their pervasiveness was linked to their transparent meaning. The core semantic meanings of *so* and *but* correspond, to a certain extent, to their discourse marking functions and this transparency might have led to greater ease of use (Ament & Barón, 2018).

Interestingly, the third DM that the supervisors frequently utilised is *well* which was totally absent from the students' data. The marker's most frequent function was to preface a dispreferred response which gives it the trait of a politeness device that attends to the addressee's positive face (Brown & Levinson, 1987). The turn-initial instances of *well* also signifies the supervisors' tendency to "reflect(s) before speaking" and to carefully consider all aspects of the student's prior turn before responding (Sclafani, 2017). Hence, despite the fact that inferential and structural functions of DMs are prevailing in the supervisors' data, other DMs that serve interpersonal functions are also prevalent in their speech (Hellermann & Vergun, 2007, p. 176)

On the other hand, the two students showed a tendency to employ a high number of interpersonal DMs which are closely linked to the participant framework in Schiffrin's (1987) discourse coherence model. The most frequent DMs in the two students' data are *I think*, *I mean,* and *you know* which are mostly used to encode the communicative intentions of speaker as well as the involvement of the listener (Andersen, 2001; Brinton,

1996; Morell, 2004; Schiffrin, 1987). Some of their salient functions include seeking confirmation, justifying a counter viewpoint, stalling for a time, initiating self-repair, displaying insufficient knowledge and highlighting personal opinions.

In accord with most previous studies, a large number of DMs in the data turned out to be multifunctional performing different functions depending on the interactional contexts in which they occur. One outcome of this is the suggestion that similar frequency of a DM does not necessarily entail the use of similar functions (Kirkham, 2011, p. 213). For example, the marker *but* is used by the two supervisors with relatively similar frequency (73 vs 72), yet its functions differ markedly between the two. SP2 generally used the marker to signal direct or indirect contrast while the most frequent use of the marker by SP1 is to index speaker's return.

Therefore, it is essential to emphasise that, while frequency analysis is in itself an important point of departure for the study of DMs, its use in isolation, as Sinclair (1996, p. 80) has convincingly argued, can be misleading. Besides, as the determination of the markers' core meanings is mostly determined on the basis of their accompanying embodied cues (see section 7.1.3), it is suggested that the multifunctionality of DMs should be described as operating on a "type of spectrum" which could aid to "a more concrete classification of discourse markers" (Fischer, 2014).

The analysis also revealed the tendency of DMs to occur in combination, which is particularly common in the cases of *but*, *so* and *well* which were uttered in combination in approximately 37% of their occurrences. Turning to their preferred positions, the majority of DMs' clusters (71%) occur either in turn-initial or turn-final positions which implies their

crucial role in shaping the " the organisation of turns-at-talk" (Schegloff, 1996, p. 54; Degand & van Bergen, 2016; Haselow, 2019). While some researchers (e.g. Shively, 2015) consider marking speech boundaries as a sign of fluency specifically in the case of L2 speakers, others (Gilquin, 2008; Trenchs-Parera, 2009) suggest that the clustering of multiple DMs is a signal of disfluency. The position I take is in accord with Crible and Pascual (2020, p. 64) who consider the notions of disfluency and fluency as "relevant to native speakers as well as to learners".

Based on this, the combined DMs jointly serve other functions such as conveying the speakers' stance, formulating the next communicative move and as topic management devices. Adopting Crible and Cuenca's categorisation (2018) which classifies DMs combination based on their degree of integration, the analysis has further shown that the most frequent type of combination is lexicalization when a new meaning arises from the co-occurrence of the markers, and removing one marker may result in changing the meaning of the cluster. Additionally, the meaning of the cluster is not often identified merely based on which DMs are combined, multimodal cues are crucial in interpreting their meanings.

On the whole, it is plausible to argue that the use of DMs in the current data "do[es] not occur randomly throughout interaction" (Maschler, 1998, p. 14). The participants' dynamic use of DMs is more than just as cohesive devices as they also play significant roles in signalling the speakers' communicative intentions and goals which reflects that *interactiveness* is a vital aspect of spoken academic discourse (Evison, 2009; McCarthy, 2013).

7.1.2 RQ2: how do the contextual factors influence the use of DMs

As has been emphasised throughout this thesis, the main unit of analysis is multimodal DMs, but the study moves beyond these items to consider how the broader context of supervisory discourse is enacted through the participants' employment of multimodal DMs which is an issue that has not been sufficiently addressed in previous research (Fuller, 2003, p. 25).

What became clear from the analyses is that DMs in this particular context could provide a reliable means for understanding the kinds of institutional practices being ratified in the ongoing talk (Heritage, 2005, p. 112). To some extent, the expert/novice dichotomy incorporated by Evison (2013) for the understanding of classroom interaction might be applicable to this study. As a type of institutional discourse, there is a well-established relationship of power and authority in doctoral supervision sessions which is firmly imbedded within the role system between experts (supervisors) and novices (students) (Dong, 2009, p. 227). As evidenced by DMs' use, ST1's recurrent disclaimer of knowledge and requests for advice and guidance are clear indications for her orientation to the role of novice who assigns the expert role to the supervisor (Reichert & Lierbscher, 2012). In contrast, ST2 consistantly speaks with a voice of authority and an increased ownership of his thesis, hence orienting to a more expert role. However, it is too simplistic to say that it was always the case as some discrepancies do exist which are especially true in ST2's use of *so* and *honestly* in section (6.3.2) and ST1's use of *I don't know* to project a non-fitted response (section 5.1.2).

On the other hand, the two supervisors, though sharing the same institutional role, are found to widely adjust their use of DMs to reflect and embrace their students' needs. SP1, for example, often adopts an indirect supervisory strategy (Anderson, 1988) in delivering his feedback and guidance which is evident from his choice of DMs that give the meaning of vagueness and hedging (e.g. *sort of*, *kind of*, *like*). He often tends to step back from being committed and deliver his speech in the form of equivocal suggestions that are open up for other possibilities. By adopting such a peer-to-peer model (Bitchener et al., 2010; East et al., 2012) he emphasises equal power relation between himself and the student. These selected strategies are often attuned to the ST1's displays of knowledge gaps and the need to be taught and guided which are recurrently observed characteristics of her talk.

Alternatively, in ST2-SP2's data, the institutional role of expert vs novice is a "dynamic construct that appears in different formats" (Kecskes, 2008, p. 385). It is sometimes a well-defined characteristic as described in Section (6.4) where SP2 clearly presents himself as more knowledgeable who provides prompt and detailed advice with constructive feedback, thus creating a "challenging and empowering dialogue" between him and the student (Wisker, 2012, p. 187). However, in other episodes (e.g. section 6.2.1), the boundaries between the two were blurred for the sake of creating a sense of community and transmitting institutional knowledge and rules. This dynamicity and adjustment reflect careful management of roles and responsibilities.

Thus, the analysis emphasises that DMs are indeed complex, dynamic and multifunctional devices, which sometimes resist straightforward classification such as

structural or interpersonal as their interpretations depend on various intra-interactional factors (Raclaw, 2009). As argued by Kecskes (2008, p. 385) “people attempt to fit their language to a situational context that their language, in turn, helped to create in the first place”. This exchange means that DMs, as other components of language both shape the context and are shaped by the situational context (Goodwin & Duranti, 1992).

Besides their contribution in defining the institutional roles adopted by the participants, the impact of context on DMs may be directly related to the negotiations of rapport management and institutional identities.

7.1.2.1 DMs and Rapport management

People in general have an instinctive need to connect with others and form personal relationships (Baumeister & Lery, 1995). This desire for relatedness is indeed a vital factor that has a profound impact on people’ physical and mental health (Uchino et al., 2012). In doctoral supervision literature, there is general agreement that the successful outcome of any PhD project depends in no small extent on positive student-supervisor relationships (Adkins, 2009; Ives & Rowley, 2005; McAlpine and Norton, 2006; Walton et al., 2012). In its broad sense, rapport building refers to the “speakers’ concern with positioning themselves in the discourse, and via this positioning guiding and influencing interactants’ inferencing processes” (House, 2013, p. 58). However, the way to achieve rapport-building varies considerably based on the social context, the communicative strategies adopted, and the participants’ linguistic (and nonverbal) choices (Hernández López, 2008, p. 58). Regarding the present data, the employment of DMs for rapport

management is manifested in four broad strategies, namely, *other-attentiveness*, *imitative behaviour*, *vagueness* and *indirectness.*

The first strategy is *other-attentiveness* which refers to "showing engagement with the other party" (Bolden, 2006, p. 661). The analysis has shown that the majority of DMs which occur in turn-initial positions (67%) convey, as an essential component of their multiple meanings, other-attentive courses of actions. According to García (2020, p. 1) "Turn beginnings are the place in conversation where the connection (or otherwise) between a prior and a next turn is displayed" and the function of other-attentiveness comes into play as one of the means of realising those "otherwise" (Bolden, 2006). In such contexts, DMs-prefacing are used as ''emergence from incipiency'' (p. 663) whenever the speaker has to deal with an interactional problem to act as a resource for accomplishing alter's understanding " (House, 2013, p. 62). In this sense, other-attentiveness can be considered as "one way of conceptualizing politeness" (Fukushima, 2015)

The way an interlocutor designates his attentiveness to the addressee is also encoded in accompanying embodied conduct, particularly in mutual gaze (sections 6.2.1, 5.1.1, 5.2.1), physical proximity (sections 5.3.1, 6.4.4), head nods (5.3.2), and palm Addressed gesture (6.4.3). The use of coverbal gesture for attentiveness aligns with Kendon's (2004) view of *recipient design* whereby the speakers tune their gesture–speech units in a way that accomplish pragmatic intent and at the same time produce the intended effect on the addressee. It could therefore be argued that *recipient design* does not occur merely in relation to repair or interactional troubles (Horton & Keysar, 1996), instead, it functions "at the very core of the human communicative system, which should therefore affect communicative signals by default" (Winner et al., 2019, p. 2)

Other DMs in the data (particularly various uses of *I think* by ST2) are far from being other-attentive, instead they focus on the speaker's own experiences or concerns, hence indexing self-attentive characters (Heritage, 2015, p. 96). Nevertheless, being attentive to the self does not necessarily affect rapport building or project interpersonal disalignment (Prior, 2018). This has been shown in section (6.4.4) when the supervisor affiliates with the student's stance toward the talk while, simultaneously, "asserting his more rights over the knowledge" (Steensig, 2013, p. 944) and subsequently he displays attentiveness with the student in a cooperative way. Nevertheless, undesired moments of disalignment have also been observed in section (6.2.2) when ST2 implicitly disagrees with the supervisor using (yeah but honestly) which could indicate a possible reluctance to accommodate with the supervisor due to institutional asymmetries.

The second strategy is imitative behaviour which entails matching the verbal or nonverbal patterns of the interlocutor (Hunt & Price, 2002). Section (4.3.1) has shown that participants sometimes adjust their choice of DMs to match that of their interlocutors (Soliz & Giles, 2014, p. 108). The accommodating behaviour is also evident in prosodic features where the participants employ matching tones (section 5.2.1.1). As explained earlier, the primary reason for this conduct is the desire to seek approval and maintain convergence from others (O'Keeffe & Adolphs, 2008) hence improving the effectiveness and cooperation of their interaction (Fisk & Vaarala, 2017, p. 24). The results have also shown that successful convergence is not necessarily limited to imitative behaviours, it is also recognised in instances where the participants represent themselves as autonomous individuals as far as its predicted and acknowledged by the interlocutor (Griffin, 2012; Soliz & Giles, 2014).

Another critical strategy for rapport-building is vagueness which relates to the speaker's choice to "convey information in a softened manner" (Carter & McCarthy, 2006, p. 202). As shown in chapter 5, the use of vague markers is highly represented in ST1-SP1 interactions which are often employed to indicate uncertainty, mitigation, signal approximation, give the listener flexibility, and avoid sounding assertive, which are all related in one way or another to rapport building between interlocutors as they maintain interpersonal relationships by softening the tone of utterance so that speakers " do not appear too direct, unduly authoritative or assertive" (Carter and McCarthy, 2006, p. 202; Carter, 2003; Cheng & Warren, 2003; Gassner, 2012; Overstreet, 1999, Zhang, 2013). Thus, their frequent utilisation in the data is "by no means equal to loose talk but rather is an endeavour strategically made to achieve certain communicative goals" (Parvaresh & Tayebi, 2014, p. 597).

What seems even more striking is that the expression of vagueness is not only concerned with DMs that have an inherent meaning of underspecificity (e.g. general extenders and approximators), instead, it could be communicated by other markers (e.g. *I think*) based on the strategic needs of communication (Zhang, 2013, p. 88). Vagueness is therefore a pragmatic phenomenon (Gassner, 2012) which is often negotiated and interpreted depending on context (Burnett, 2012; Carter and McCarthy, 1997; Channell, 1994).

The fourth strategy is indirectness which constitutes an integral part of the current supervisory discourse. DMs are found to be very often employed as discursive devices for indexing indirectness in situations that involved a potential trouble in talk such as the negotiation of disagreement or the delivery of critical feedback (sections 5.2.1; 6.4.4). In

these cases, the supervisors tend to offer lengthy and complicated explanation typically filled with DMs with the purpose of supporting disagreement and, at the same time protecting "against flagging motivation in the student" (Cade, Lehman & Olney, 2010). The students also resorted to indirectness in cases of seeking advice and help (sections 6.4.1; 5.1.1). The frequent presence of DMs in those two situations further "provide a concise and explicit hint of rapport management" which is directly linked to politeness and the negotiation of face (Blum-Kulka, 1987; Felix-Brasdefer, 2004).

To summarise, the analysis of DMs made it clear that the optimal goal of all the participants is to maintain coordinating decisions and guarantee a comfortable emotional environment (Fay et al., 2018; Placencia, 2004) while simultaneously getting on "with each other professionally" (Wisker, 2005, p. 41).

7.1.2.2 The negotiation of identity

The use of DMs in the current data can also be seen as a vital resource for the negotiation and construction of different institutional identities. In a general sense, the concept of identity refers to "that part of an individual's self-concept which derives from his knowledge of his membership of a social group together with the value and emotional significance attached to that membership" (Tajfel, 1978, p. 63). In this respect, the notion of self is seen as a central theme in any discussion about identity (Gill, 2000, p. 54). In fact, some researchers (e.g. Cast and Burke, 1999; Giddens, 1991; Neisser, 1993) consider the two concepts as being synonymous. Nevertheless, the meaning of the self is quite complicated as "it cannot escape the challenges of interpretation" (Castañeda, 2011, p.

15). This complexity stems from the constraints created by changes in the interactants and the local setting (Hall, 2004; Lemke, 2008).

Accordingly, the stance taken in this thesis aligns with recent research on identity which moves from the perspective of psychological self to "postmodern accounts which treat identity as fluid, fragmentary, contingent and, crucially, constituted in discourse" (Benwell & Stokoe, 2006, p. 17). Hofstede (1986) introduces four components of identity: *individualism/collectivism, uncertainty avoidance, power distance and masculinity/femininity*. While it could be said with certainty that all these categories are present in the current data (see further 7.1.3.1), the analysis below focuses merely on the first element.

Drawing upon both verbal and non-verbal modes, the data reveal that each of the participants in the study exerted both collective and individual identities exchangeably (Antaki & Widdicombe, 1998). As for collective identity, which represents the most common sequences in the data, almost all the extracts presented in sections (5.1) and (6.4.2) clearly show how the two students apply DMs as resources for establishing a shared identity with their supervisors, of what is called by Evison (2013, p. 16) as an *academic in-group.*

The idea of sharing an identity is also evident in the strategic use of DMs collocation (*yeah but, I think you know*) and the combination "*DM+ we*" utilised by the two supervisors (Sections 5.3.2, 6.4.3) which create a sense of community (Lee, 2016, p. 108) and give the perception of *inclusivity* (Ituarte & Davies, 2007, p. 81). As an aspect of collective identity, the use of DMs to engender shared identity is therefore an essential

characteristic of decision-making as it implies that the formulation of decisions is collaboratively negotiated and co-jointly established by the two interlocutors. (Wasson, 2016; Baraldi, 2013). This overall tendency of engaging in collaborative talk in which the supervisor and student are portrayed as belonging to the same institutional community is further viewed as a strategy through which the supervisors provide scaffolding talk which creates a positive teaching and learning environment (Van de Pol, 2012).

Alongside these frequent instances of collective identities, the analysis also exemplified other cases in which a transition to individual identities were discursively constructed. To give an example, individual identity can be seen in the way ST1 claims insufficient knowledge and resistance to take full responsibility of her actions, she casts herself in a less dominant role by orienting to the disciplinary identity of the less knowledgeable student who is different from the more knowledgeable supervisor. On the other hand, ST2 has delivered several arguments, in which he has reinforced and justified his decision-making. It is interesting to see, for instance, how he used *I think*, and *I mean*, in order to disagree with the supervisor and to make his voice heard in the argument which signals an identity of confidence and assertiveness as he is willing to "risk the potentially face threatening move of an implied criticism" (Donaghue, 2015, p. 119). His long pauses that precede DMs in many examples presented in chapter 6 also demonstrate his resistance to negative feedback which he probably perceives as a threat to his professional identity. In doing so, he projects the identity of a self-aware independent researcher (Murphy et al., 2009).

Likewise, the two supervisors sometimes act as single individuals emphasising their institutional identity which is particularly articulated in cases where they are committed to

their supervisory roles and responsibilities associated with guiding, suggesting and being constructively critical (Wisker, 2001, p. 37). For instance, the respective authority over knowledge construction distinctively mapped onto the way SP2 uses various DMs to deliver his organisational (6.4.1) and instructional talk (6.4.2) which confirm his supervisory identity as an adviser. However, as explained above, the sense of individuality is not quite visible in SP1's use of DMs as he seems to be more oriented towards creating a friendly and supportive relationship with the student by avoiding a clearly defined supervisor vs student relationship. This preference for a collective rather than individual style reflects his increased awareness of the student's need to develop independence and confidence (see further section 7.2).

Utilising Bakhtin's (1984) concept of *double voicing* and evoking on its expansion by Baxter (2010; 2011; 2014), it is suggested that DMs can provide a rich understanding of the five types of double voicing: *anticipatory*, when the DMs are used to predict the thoughts of the interlocutor and thus deflect any possible criticism of their abilities or actions; *Corrective,* when they initiate self-repair; *Mitigating* (the most common type), which relates to the use of DMs as mitigating devices that aim to reduce authority and build solidarity with the interlocutor; *Authoritative,* when DMs are employed to display personal power; and *Dialogic,* which refers to the act of debating ideas which provides an opportunity for the interlocutor to join the self-debate (Bell, 1984).

The point emphasised here is the balance that the participants creates between the professional (academic) and social (emotional) aspects of their relationship (Sambrook, Stewart & Roberts, 2008, p. 73). However, it is vital to continually stress that this analysis draws on the supervisory discourse of only two group participants, therefore its aim is not

to generalise but rather to provide “a rich, contextualized understanding of some aspect of human experience through the intensive study of particular cases” (Polit & Beck, 2010, p. 1451)

Based on the discussion above, it could be argued that DMs are highly multifaceted and fundamental in the unfolding of the supervisory encounter, which could enhance the understanding of the relationship between discourse and many other social factors such as identity, context, power and the participants’ relationships. Additionally, the presence of different voices demonstrates that students and supervisors do not necessarily sustain a constant institutional identity (cf. Ochs, 1992) or a fixed powerful-powerless relationship. The results thus lend supports to the *constitutive* v*iew* (Craig,1999; 2007; Robinson, 2006) which considers relationships as a phenomenon “which participants co-create and continually re-create as they communicate both at particular moments and across time. (Arundale, 2010, p. 2086). Therefore, the functions of DMs should not be treated as ‘‘independent variables with discursive consequences’’ (Hopper & Chen, 1996, p. 310), but rather as “being constituted and reconstituted, on a turn by turn basis by practices of social action/activity that are jointly constructed by participants” (Robinson, 2006, p. 138)

This complexity suggests that further studies which extend the role of verbal and nonverbal discourse markers in supervisory discourse may allow for more vibrant understanding of the multiple institutional identities that interlocutors bring to their interactions.

7.1.3 RQ3: What understandings can a multimodal perspective on DMs offer?

When it comes to the multimodal analysis, the most important finding to highlight is that the various embodied cues that accompany DMs carry vital information for communication related to a broad array of interactive discourse management including marking speech acts (e.g. assertion, requesting, informing), indicating different degrees of epistemic stance (certainty/uncertainty) and prefacing dispreferred turns. They also play a vital role in the multifunctionality of some DMs (e.g. I think, so, or something like that) by disambiguating their core from peripheral uses (Abuczki, 2015; Bell, 1998; Furkó, 2020).

The analysis has also identified tone realisations for all the instances of DMs under investigation. In general, although the markers appear with the five different intonation values, the majority are realised without tonicity which could suggest that "sometimes the discourse markers are not pragmatically essential and merely appear as supporting structural elements in the organization of the message" (Romero-Trillo, 2002, p. 94) (see further discussion in section 7.1.3.5). The rest of the markers which are treated as separate intonation phrases are more or less restricted to tones 2 and 4. The choice of these two tonal units is argued to have a significant relationship with intersubjectivity which, as highlighted in the discussion above, is a concept this research holds a focus on.

Overall, the role of prosodic features on DMs could be broadly classified into two categories: the speakers' commitment towards the proposition expressed (Heritage, 2012) or their agreement/disagreement with the interlocutor (Prieto & Borràs-Comes, 2017; Stivers & Rossano, 2010). The result also suggests that individual DMs are most likely to be realised with a multiplicity of tones depending on their function in discourse. Accordingly,

prosodic features become significant in cases when the marker occupies the same position in the discourse but performs different pragmatic functions.

Based on the analyses presented in the analytical chapters, five key aspects are discussed below which highlight salient interactional practices in which the participants resort to embodies conduct with DMs.

7.1.3.1 The body as a resource for the negotiation of epistemicity

Across many extracts in this thesis, it was clearly revealed that the participants' orientations to knowledge is encoded not only by lexical DMs but also through embodied interactional practices. For instance, the functional analyses of the palm-down and chopping hand gestures illustrate how they are influential resources for drawing inferences about the speakers' strong epistemic stance. Alternatively, instances of averted gaze and leaning forward with various DMs demonstrate the interlocutor' attempt to align the asymmetric distribution of knowledge. These accompanying gestures are found to implement more than one action (Schegloff, 2007) as they contribute largely to the speakers' intentional act as well as to the recipients' understanding of these acts. This, in turn draws attention to the role of embodiment in the formation of composite social actions (Rossi, 2018).

To reiterate, this point could be explored further by revisiting two extracts quoted in sections (6.3.1.1) and (6.4.1) which illustrated clearly how the embodiment of DMs is a vital resource for implementing composite actions which consists of two components: an *informing* task which refers to the speakers' implications in relation to their epistemic access (k+/k-); and *information uptake* which gives the recipients grounds for taking a

practical action. In the first extract presented in section (6.3.1.1), *I think* was accompanied by an averted gaze which gives indication that the supervisor was presenting his opinion as an offer or suggestion rather than as an assertion. This downgraded tone gave place for the student to challenge the supervisor's epistemic primacy by claiming epistemic access in second position (Heritage & Raymond, 2005) and orienting to equal entitlement between him and the supervisor (Asmuß & Oshima, 2012, p. 79)

However, the case is different in the second extract discussed in (6.4.1) where the supervisor initiated his utterance with *I think* uttered with high intensity and accompanied by a chopping gesture. This combination signified the supervisor claim of higher authority over the student. The student seemed to understand the particular social action implied in the multimodal practice which was resonated in his acceptance of the evaluation in a straightaway manner using DMs clusters (oh ok).

The accompanying gesture are thus loaded with complex and rich information which is central to the speakers as well as the addressees. In the two examples, however, the supervisor takes not only an evaluative stance but also an epistemic stance (Hayano, 2011), thus achieving "epistemic primacy congruence" (Hayano, 2011; Heinemann et al., 2011). This lends support to the significant role embodied cues play in the distinction between *absolute* and *relative* epistemic access (Heritage, 2012) which is not always directly available in the textual mode and may need "to be pieced together" with the help of other non-verbal and "contextual considerations" (Rossia, 2018, p. 379).

7.1.3.2 Gesture as assistance of Self-disclosure

The analysis of the PUOH gesture with *so* and *honestly* in section (6.3.2) has revealed how this combination is strategically employed to reveal St2's experiences or emotional states. In traditional psychology, these moments of revelation are commonly referred to as self-disclosure (Childs & Walsh, 2017). Particularly impressive is the example examined in (6.2.3.1) where the gesture co-occurs with the stand-alone *so* after the supervisor's evaluation turn. As a way of handling his mental state of not possessing the background knowledge in relation to the ongoing talk (which has not been verbally revealed), he employed the PUOH gesture to partially disclose some aspects of his current situation of unknowing. In this sense, the embodiment here appears to be a way of dealing with emotionally troubling experiences that are difficult to be shared verbally.

Likewise, section (5.3) has provided an example of SP1's use of leaning forward and a particular hand movement with the words "*but the teacher in me".* Apparently, the disclosure of personal experience joined with leaning forward assists him to avoid the risk that his critical feedback being taken unfavourably, hence handling particular "interactional contingency" (Stokoe, 2009, p. 157) which is a prominent component of rapport building.

However, it should be noted that self-disclosure is not a "pre-ordained" meaning of DMs, rather; it is a process that is interactionally achieved" (Pawelcyk & Erskine, 2008, p. 45). Consequently, it may well be the case that in other contexts where DMs are connected with moments of self-disclosure, co-occurring gestures might not be interactionally created. This finding does suggest, however, that the multimodal analysis of DMs in relation to the study of self-disclosure is a promising area for further research.

7.1.3.3 The embodiment of precision

Section (7.1.1.1) has shown how the participants' use of vague language (through verbal and non-verbal modes) contribute hugely to rapport building. Alternatively, people may choose to communicate their goal of being more specific (Vincze & Poggi, 2011). This desire to be precise is tightly interwoven in Grice's (1975) maxims of quality and quantity which entails not telling more or less than what is relevant, consequently, determining "the threshold of precision we should stick to" (Vincze, Poggi & D'Erico, 2014, p. 179).

Of particular interest is the precision grip gesture analysed in section (6.4.2) which is found to co-occur with the marker *so*. While it is argued that, based on the verbal mode only, the marker's primary function is to provide summary, it is the accompanying gesture that is available as an interactional resource for signifying the specificity and precision of a fine point in the discussion in particular contexts where "clarification is important in the dynamics of conversational exchange" (Drăgan, 2018, p. 57). It should come as no surprise then that this accompanying gesture is exclusively performed by the two supervisors through which they achieve their institutional role of providing explicit instruction (Gatfield & Alpert, 2002). Supervisory discourse is believably the most central source of input through which the supervisors provide the student with instructions and guidance (Kaur 2011). Consequently, the supervisors rely on multiple semiotic resources to achieve greater communicative clarity and arrive at shared understanding with the student. Moreover, as the marker *so* is multifunctional, it is this combination of bodily and verbal elements that allows the disambiguation of this particular function of the marker.

7.1.3.4 DMs and the Interface of prosodic prominence and hand gesture

The analysis of 178 instances of coverbal hand gestures, whether recurrent, beat or metaphoric, reveals that they are typically produced concurrently with prosodically prominent DMs whilst there is a low chance of gestures (n=4) to co-occur whenever DMs are recognised without tonicity. Additionally, the analysis shows that DMs that are combined with gesture-prosodic prominence are relatively longer in durations (average 0.4 sec.) than the other DMs realised with Tone 0 (0.2 sec). This finding conforms with previous studies (Esteve-Gibert & Prieto, 2013; Kushch, Igualada, & Prieto, 2018; McNeill, 1992) that reported strong alignment of accented syllables with the stroke of the associated gesture. Prosodic-gestural prominence is also beneficial for L2 vocabulary learning as they facilitate word-meaning associations by creating "multimodal memory traces" that help learners recall the words (e.g. Kushch et al., 2018, p. 994; Macedonia, Müller, & Friederici, 2011). Likewise, prominence in the two modalities together has been shown to have positive impact on children's early language development (Llanes-Coromina, Vila`-Giménez, Kushch, Borra`s-Comes, & Prieto, 2018).

Thus, the joint combination of gestural-prosodic prominence is used by the participants as a strategy to facilitate their interaction. The findings thus confirm earlier suggestions (e.g. Kendon, 1980; Kita & Özyürek, 2003; McNeill, 1992) that speech and gesture represent an integrated communicative system that is firmly combined both pragmatically and prosodically.

7.1.3.5 Revisiting the characteristics of DMs

While the discussion above strongly emphasises the significant role of co-occurring gestures in the interpretation and disambiguation of DMs, the quantitative analysis also shows that a large number of DMs in the current data are performed without the presence of any concurrent gestures which is an interesting finding in its own. A similar result has been obtained by Chen (2019) in her study on the recurrent phrases (*do you know/see what I mean*). She found that the phrases are likely to be accompanied by different types of gestures when they are used in their propositional meaning of checking understanding while co-occurring gestures were relatively infrequent (5 out of 11) when the phrases are used as DMs. As an explanation, she further suggests that when the items "are adopted by the speaker as discourse markers with little intention of checking understanding, they tend not to be accompanied by any gesture" (p. 60). Accordingly, the absence of gesture with DMs might be explained by reference to the process of pragmaticalisation.

Many researchers (e.g Erman and Kotsinas, 1993; Aijmer, 1997) believe that DMs derive from the process of grammaticalisation (or pragmaticalisation) which is defined as "the process by which a syntagma or word form, in a given context, changes its propositional meaning in favour of an essentially metacommunicative, discourse interactional meaning" (Frank-Job, 2006, p. 397). Although the difference between grammaticalisation and pragmaticalization is still a controversy topic in linguistics (Furkó, 2014), I follow Brinton (2017, p. 32) in her view that there is "little to distinguish the two processes qua process". One of the main criteria of the pragmaticalisation theory is the syntactic optionality of DMs (see further section 2.1.3), which means that they, for the

most part do not contribute to the truth-conditions of the proposition expressed by an utterance (Furkó, 2013, p. 24). The lack of conceptual meaning is arguably the reason that leads to the absence of coverbal gesture with many of the markers. However, this interpretation does not underestimate the central functions DMs serve in structuring and organising discourse; somewhat, it echoes the assumption that the grammatical "content of an utterance is not altered if the DM is removed" (Frank-Job, 2006, p. 400).

It is therefore pertinent to come back to the distinction made by Blakemore (2002) between the conceptual and procedural meanings of DMs (as compared to the truth-conditional/non-truth-conditional distinction). In contrast with Fraser (2006), she suggests that DMs should not be analysed as having either conceptual or a procedural meaning; rather, their meaning senses should be viewed as a continuum. It is argued that her remark offers a reliable explanation to the current result. To illustrate this point further, consider the two instances of *I think* below which may be processed differently according to the presence (or absence) of accompanying gesture.

a) I think (.) I need to update it and I need more details really
((accompanied by a chopping gesture))

b) I think most of the time yeah uh for vocabulary uh and grammar and thing ((no gesture))

Although the two instances of *I think* above encode procedural meaning, there is a fundamental difference between the two examples which is prompted by the presence of coverbal gesture. The chopping gesture coupled with the marker in (a) adds an additional epistemic modality which enhances the pragmatic enrichment of the marker (Chor, 2013). It could therefore be argued that the marker here falls on the conceptual side of the

spectrum as it triggers the “higher-order explicatures” (Wilson and Sperber, 1993) and contribute to truth-conditional content of the DM (Grice, 1989). On the other hand, the marker in (b) could possibly be seen as falling on the procedural side (Wilson, 2011). Building on this, it is suggested that the conceptual–procedural distinction can be applied to the interpretation of the presence vs absence of nonverbal cues with DMs.

Expanding on this, the analysed data demonstrate two general types of conceptual meanings that are activated by the accompanying embodied resources. The first type is *subjective meaning* which fulfil the need to express personal feelings and attitudes (cf. section 7.1.3.1). As explained by Stubbs (1986, p. 1) “whenever speakers say anything, they encode their point of view towards it: whether they think it is a reasonable thing to say or might be found to be obvious, irrelevant, impolite or whatever”. Examples of subjective gestures in this study include the chopping gesture and the palm-down hand movements.

The second type is intersubjective meaning which refers to the speaker’s attention to the addressee as a participant in the speech event (Traugutt & Dasher, 2005, p. 22). The PUOH gesture, the Open Hand Prone gesture, precision grip and leaning forward are all gestural resources of intersubjectivity. However, it is sometimes difficult to determine whether the accompanying gesture retains one meaning sense only or it could carry the properties of the two.

While this study asserts that DMs are indeed indispensable for the structuring and organising the discourse, indicating the speakers’ orientations towards the hearers and their attitudes to the proposition being expressed (Dér, 2010; Diewald, 2011), considering

the optionality of DMs as a distinguishing feature needs to be reassessed taken into account their nonverbal properties. With the significance of a combined CLCA approach in mind, it would be a worthwhile endeavour to view the role of coverbal gestures from different perceptions. Hence, revisiting other traditional approaches to DMs and weaving multimodal analysis into their principles may allow for more fruitful and nuanced practical findings. While gaze aversion seems well aligned with dispreferred organisation and politeness, the analysis reveals that the co-occurrence of other embodied resources with DMs are intrinsically imbued with elements of epistemic asymmetries, power, self-disclosure, identity and precision.

7.2 DMs and the dynamics of doctoral supervision: Two possible factors

As described above, the findings from this study reveal that the two group participants use DMs for different purposes. Taken the mutually constitutive relationship between CA and action into account (Dupret, Lynch, & Berard, 2015, p. 287), the analyses above have highlighted the use of multimodal DMs in reference to the direct pragmatic context (the sequential positioning) (Potter, 2003). However, the types of actions people perform are strongly affected by the broader context too (Hernández López, 2008). In a venture to explain the effect of the broader context on the differential distribution and functions of DMs in the current data, two possible factors are proposed, namely the stage of the PhD and the disciplinary nature.

7.2.1 The influence of stage of candidature

One of the factors that reflects the employment of DMs in the data is the stage of candidature. As presented earlier, the data were collected at two different stages of the supervisory journey. ST1-SP1 interactions took place at the first year of the doctoral programme. During this early phase, most PhD students regularly struggle to drive their research forward, therefore they always seek the help of their supervisors to find relevant literature, justify research methodology and develop materials for their pilot and main study (Harwood & Petric, 2020, p. 151). Likewise, the interpersonal relationships between students and supervisors at this stage is still developing and hence a great deal of their supervisory discourse might be oriented to instituting good relationship (Vehviläinen, 2009; Waring, 2007). This is evident in the increased amount of small talk (McCarthy, 2003) and humour which was almost always produced by the supervisor (see section 3.2.1).

On the other hand, ST2-SP2's meetings take place at a late stage of the doctoral candidature. It is perhaps more likely that as the doctoral journey progresses, the interpersonal relationship has already been established, suggesting that the chance of getting misunderstood is less likely (Melander & Sahlström, 2010). Therefore, fewer interpersonal markers appear in their interactions as the concentration now is on research contents. Unlike ST1-SP1's data, there is hardly any off topics or digression from research-related tasks.

Through the use of subjective markers, ST2 displays gained confidence and competency by positioning himself as an independent researcher who takes responsibility

for his study and voice his own opinions. In contrast with ST1, he typically places himself in a more equal footing with his supervisor by being less passive and more able to argue, justify and involve in critical decision-making. The supervisor seems to accommodate with SP2's needs as he appears to focus more on the content of the study and provide more critical feedback on research-related issues. As explained in the examples in section (7.1.2), this strategy of accommodating with the student's needs is essential for sustaining engagement and achieving productive and successful interactions between the two (Nguyen, 2016, Gablasova et al., 2015).

It also appears that the pedagogic orientation of the two supervisors differs based on the stage of the PhD. SP2 focuses on developing student's criticality through argumentative talk while ST1 is much concerned with relinquishing any control he might have in order to offer a more secure route to the student's participation, therefore making a balance between providing encouraging and friendly environment and his institutional roles of giving guidance and advice (Nguyen, 2016).

Based on these differences, it is argued that different stages of the PhD journey are likely to induce different discursive strategies and roles. For instance, supervisors at the early stages might aim for enculturating and transformation whilst in late stages they might be primary concerned with producing a functional outcome (Lee, 2007). Egan et al. (2009) and Deuchar (2008) find that tensions between supervisors and students may arise because supervisors' expectations for student autonomy sometimes conflicts with student's needs at critical stages of candidature in the PhD.

7.2.2 Disciplinary nature

In addition to stage of candidature, the differences of the disciplinary field of study between the two participants group may be relevant to the broader discussion of the use of DMs. As the current study investigates the use of DMs in two situationally distinct yet structurally comparable disciplines, an alternative reason for different distributions and functions of DMs might be attributed to the different ways of organizing doctoral education in the two fields. This in turn sheds light on the role of situational factors in discourse variation and the nature of discourse-pragmatic variability (Pichler, 2010, p. 586).

As stated in the quality manual of the university in which the current data was collected, "the specific roles of supervisors may differ depending on the academic discipline". ST1-SP1 thesis work is part of research in humanities which is a soft discipline, whereas ST2-SP2 belongs to the Built Environment, more particularly mechanical engineering. Cross-disciplinary investigations into the use of stance markers have identified substantial disciplinary variation and "distinct communicative conventions" (Hyland & Hamp-Lyons, 2002, p. 5) in writers' approaches to constructing knowledge and communicating with readers (cf. Dong & Buckingham, 2018). Such differences were found, for instance, between applied linguistics and psychology (Bruce, 2014), English literature and sociology (Bruce, 2016), politics/international relations and materials science (Charles, 2003), conservation biology and wildlife behaviour (Samraj, 2005).

Regarding spoken discourse, Simon-Vandenbergen and Aijmer (2007) who investigate the frequencies of adverbs across three disciplines, namely the humanities,

social sciences and natural sciences, observe that high-certainty adverbs show a considerable frequency in the discourse of natural sciences, but are less frequent in the discourse of humanities and social sciences. Mechanical Engineering belongs to the category of hard sciences. Hence, the data handled within this discipline are more likely to be precise and accurate than in the case of soft sciences. The finding is in line with previous studies (Bromme & Thomm, 2015; Schommer, 1990; Schommer-Aikins & Easter, 2006) which indicate that the degree of certainty influence epistemicity differently for soft and hard disciplines.

Schleef (2008) compares the use and functions of *okay*, *alright*, *right*, and *now* in the speech of American university lectures in two academic divisions (i.e. Humanities and Natural Sciences). His results suggest that the academic division appears to have significant influence on the use of these markers. He concluded that "differences in discipline should be an essential criterion in any research into academic speech (Schleef, 2008, p. 81). However, it is plainly impractical to generalise from this small dataset and therefore further empirical research is needed so as to consider these alternative justifications more intently.

In the light of the results detailed above, this thesis calls for an interactive and dynamic approach for the study of DMs that takes into account not only the speakers' communicative intentions and their addressee's contribution to the discourse, but also other momentary variables such as the cultural and institutional expectations, the different institutional roles adopted by each interlocutor, their social relationship and the characteristics of the ongoing discourse, which is continuously adjusted and modified "in

the turn-by-turn sequential unfolding of interaction (Stevanovic & Perakyla, 2014, p. 189, see also McNally, 2013; Romero-Trillo, 2007). Particularly relevant for this claim is the variational perspective proposed by Aijmer (2013, p. 4) which focuses on "the language user and the relationship between meaning and context" (see section 2.4.3).

With regard to the effect of context, the current results support two considerable factors: that context is dynamic which changes as the discourse progresses (Flowerdew 2018, Frank-Job 2006, O'Halloran, Tan and E 2014); and that it is also negotiated between the participants based on their institutional role and the purpose of interaction. What is currently prevailing is the static view of context (Heritage and Clayman, 2010, p. 21). The findings of this thesis provide empirical support for Nguyen and Janssens' (2018) suggestion that in order to advance the understanding of how context might shape talk-in-interaction, it is crucial to adopt a more emergent view by considering who is constructing context and how.

However, since there are differences between the two students in terms of age and gender as well as differences between the two supervisors in terms of their L1 background, there is a possibility that other sociolinguistic factors might have an effect on the interpretation of these results. Nevertheless, the findings do shed light on some crucial aspects of the dynamic supervisory relationship.

7.3 Pedagogical implications

Pedagogically speaking, the results of this research have a number of implications for the areas of discourse markers, doctoral supervisions, and multimodality. Firstly, the results obtained from the current study lends strong support to the vital role that DMs play in student-supervisor interactions. Nevertheless, as previously mentioned (section 4.2.1), little attention is given to the teaching of DMs in L2 textbooks and classroom interactions due to their alleged informality and colloquialism (Östman, 1995, p. 98). Being a teacher of English as an L2, I would argue that raising the learners' awareness and enhancing their understanding of the use of DMs in the classroom setting through authentic speech samples is essential (McCarthy, 1998, p. 60).

The results also propose a vital methodological implication with regard to the concept of *reflexivity* (Roulston, 2010). In particular, the fine-grained conversation analysis of multimodal discourse markers could enable both doctoral students and supervisors to observe and reflect on valuable characteristics that emerge from the co-constructed interactions (Mann, 2016, p. 260). Consequently, the study has the potential of extending the empirical knowledge of doctoral supervisions by providing a window for understanding the use of DMs as valuable interactive resources in academic spoken discourse (Othman, 2010).

However, the most prominent aspect to consider is the novel analytical framework and the rigorous multimodal coding scheme that this study develops which encompasses the textual, prosodic, and nonverbal aspects of DMs. Given that the analysis of DMs from a multimodal perspective is still limited, the study provides a useful tool for future research to unfold the complex and multimodal aspects of these devices.

7.4 Limitations and directions for further research

Although the current study has been able to unveil vital aspects regarding the use of DMs in the context of supervisory discourse and the role of nonverbal modalities in the interpretation of their meaning, it has a number of limitations that need to be acknowledged and might be addressed in future research. One of the main limitations concerns the number of research participants as it relied on the analysis of two participants groups only. Although the primary aim of the study was not to make any generalisation, more reliable claims would have been made regarding the credibility of the results if more participants had been included. However, this limitation was outweighed by the benefits of the highly detailed multimodal analysis of data yielding a total of more than 1700 instances of DMs.

Due to the individual variation in the use of both DMs and accompanying gesture reported above, the results call for further research on more data from different disciplines in order to explore whether functions of DMs and their accompanying gestures vary with register, discipline, supervisions' style and possibly other sociolinguistic factors such as age, gender and L1 backgrounds.

A second limitation is related to the coding scheme. Since assigning pragmatic functions to DMs and the interpretation of the meaning of their accompanying gesture are mainly based on contextual cues, the annotation and coding of the data are done manually which could result in some coding errors despite the high inter-rater reliability obtained. Additionally, the determination of the DMs' functional categories is not usually straightforward as in most cases they are multifunctional. This means that in spite of the

ethical and reliable method followed, problems in the coding and analysis of the cannot be entirely avoided. It is suggested that future work could also involve enhancing and refining the coding scheme and the annotation of the data to generate baselines of the multimodal interpretation of DMs beyond the current dataset.

Yet, the multimodal coding scheme applied in this thesis provides comprehensive annotation for DMs, their position in turns, their pragmatic function and accompanying multimodal features which adds to "the small class of corpora featuring discourse and pragmatic annotation" (Rühlemann & O'Donnell 2012, p. 315). As such, the annotations can be queried for any type of research question involving the multimodal variables covered by the coding scheme beyond what was already explored in the current thesis. My future plan hence involves adopting the methodological framework and coding scheme to analyse Arabic discourse markers, which differs in lexicon and grammar from English, therefore, further conducting a cross-linguistic (as well as cross-cultural) multimodal analysis.

Another interesting avenue for future research is to adopt a longitudinal case study approach and examine the interaction of students and their supervisors over their whole candidature (from beginning to end). Given the timeframe of a PhD thesis, conducting such a method is simply not possible as collecting the data would have taken too long. Future work could thus include examining how the participants use multimodal DMs across each stage of the doctoral programme and see whether there are specified patterns that might emerge.

Further research could draw upon a range of methods and data sources, including student and supervisor interviews as it is useful supplementary data to get information

from the participants on their interpretation of the interactions (Canagarajah, 2007; Matsumoto, 2011).

Although three of the participants speak English as their second language, this study intentionally keeps itself distinct from making a contrastive analysis and only makes a passing reference to the effect of L1. The issue of involving students who do not share the same L1 with their supervisors can also be further explored. It would be worth investigating whether the interactions between students and supervisors differ, especially in terms of using English as an international lingua franca where the participants' competence in English is likely to differ widely. Additionally, a number of prior studies have identified cultural differences in the way multimodal behaviour is expressed (Allwood & Liu, 2010; Paggio & Navarretta, 2011; Rehm et al., 2008). In this way, we can explore how a change in the participants' linguistic background may bring up differences in the use of DMs and accompanying gestures.

Overall, this thesis has contributed to our understanding of the significance of the study of discourse markers and the vital role that their accompanying multimodal resources play in the meaning-making process. The results have equally provided insight into the way the participants employ multimodal DMs to achieve specific action related to the settings of doctoral supervisions. Doctoral supervision meetings present a crucial site for linguistic research, and this thesis has highlighted the importance of incorporating gesture and prosody in our descriptions of these interactions to do justice to the contribution that linguistic features, in this case DMs- make to learning, collaboration, and the advancement of knowledge in such contexts.

References

Abel, J., & Babel, M. (2017). Cognitive load reduces perceived linguistic convergence between dyads. *Language and Speech*, 60, 479–502.

Abuczki, Á. (2014). On the disambiguation of multifunctional discourse markers in multimodal interaction. *Journal on Multimodal User Interfaces*, 8(2), 121–134.

Abuczki, Á. (2015). A multimodal discourse-pragmatic analysis of ugye (~'is that so?'). *Sprachtheorie und germanistische Linguistik,* 25(1), 41–74.

Adjei, S. B. (2013). Discourse Analysis: Examining Language Use in Context. *The Qualitative Report*, 18(25), 1-10. Retrieved from https://nsuworks.nova.edu/tqr/vol18/iss25/2

Adjei, S. B. (2019). Conceptualizing Discursive Analysis as a Culturally Contextualized Activity. *The Qualitative Report*, 24(9), 2233-2243. Retrieved from https://nsuworks.nova.edu/tqr/vol24/iss9/9

Adolphs, S. (2008). *Corpus and context. Investigating pragmatic functions in spoken discourse*. Amsterdam: John Benjamins.

Adolphs, S., & Carter R. (2003). And she's like it's terrible, like: Spoken discourse, grammar and corpus analysis. *International Journal of English Studies (IJES)*, 3(1), 45-56.

Adolphs, S., & Carter, R. (2007). Beyond the word: New challenges in analysing corpora of spoken English. *European Journal of English Studies,* 11(2), 133–46.

Adolphs, S., & Carter R. (2013). *Spoken Corpus Linguistics. From Monomodal to Multimoda*l. London/New York: Routledge.

Adolphs, S., Atkins, S, & Harvey, K. (2007). Caught between professional requirements and interpersonal needs: Vague language in health care contexts. In J. Cutting (ed.) *Vague Language Explored,* (pp. 62-78). Basingstoke: Palgrave Macmillan.

Adolphs, S., Knight, D., & Carter, R. (2011). Capturing context for heterogeneous corpus analysis: Some first steps. *International Journal of Corpus Linguistics*, 16(3), 305–324.

Aijmer, K. (1996). Swedish modal particles in a contrastive perspective. *Language Sciences,* 18(1). 393–427.

Aijmer, K. (2002). *English Discourse Particles: Evidence from a Corpus*. Amsterdam: John Benjamins.

Aijmer, K. (2004). Pragmatic markers in spoken interlanguage. *Nordic Journal of English Studies,* 3(1), 173-190.

Aijmer, K. (2011). Well I'm not sure I think: The use of well by non-native speakers. *International Journal of Corpus Linguistics,* 16(2), 231-254.

Aijmer, K. (2013). *Understanding Pragmatic Markers: A Variational Pragmatic Approach*. Edinburgh, UK: Edinburgh University Press.

Aijmer, K. & Altenberg, B. (2002). Zero translations and cross-linguistic equivalence: Evidence from the English-Swedish parallel corpus. In L. E. Breivik, & A. Hasselgren (eds.*) From the COLT's mouth -and others: language corpora studies in honour of Anna-Brita Stenström*, (pp. 19–41). Amsterdam: Rodopi,

Aijmer, K., & Rühlemann, C. (2015). *Corpus pragmatics. A handbook*. Cambridge: Cambridge University Press.

Aijmer, K., Simon-Vandenbergen, Anne-Marie, (2009). Pragmatic markers. In: Östman, Jan-Ola, Verschueren, Jef (Eds.), *Handbook of Pragmatics*. Amsterdam/Philadelphia: John Benjamins.

Alami, M. (2015). Pragmatic Functions of Discourse Markers: A Review of Related Literature. In *International Journal on Studies in English Language and Literature (IJSELL)*, 3(3), 2347-3134.

Alami, M. (2016). An Investigation of Pragmatic Functions and Position of Prevalent Persian Discourse Markers Used in Casual Conversations among Tehrani Speakers. *International Journal of Applied Linguistics & English Literature*, (5)1, 250-263.

Al-Khalil, T. (2005) *Discourse Markers in Syrian Arabic: A study of Hall? Ya file, Tayyeb and Lakan Arabic*. Unpublished doctoral thesis, Essex University, UK.

AlKohlani, F. A. (2010). *The function of discourse markers in Arabic newspaper opinion articles.* Unpublished doctoral thesis, Georgetown University, USA.

Allwood, J., Cerrato, L., Jokinen, K., Navarretta, C. & Paggio, P. (2007). The MUMIN coding scheme for the annotation of feedback, turn management and sequencing. In J. C. Martin, P. Paggio, P. Kuehnlein, R. Stiefelhagen & F. Pianesi (eds), *Multimodal corpora for modeling*

human multimodal behaviour. Special issue of Language Resources and Evaluation 41(3/4), 273–87. Heidelberg: Springer.

Allott, N. (2013). Relevance Theory. *Perspectives on Linguistic Pragmatics Springer International Publishing*, 57-98. Retrieved from http://dx.doi.org/10.1007/978-3-319-01014-4_3

Alm, M., Behr, J., & Fischer, C. (2018). Modal particles and sentence type restrictions: A construction grammar perspective. *Glossa: a journal of general linguistics* 3(1), 1–32. Retrieved from https://doi.org/10.5334/gjgl.702

Al-Makoshi, M. (2014). *Discourse markers and Code-switching: Academic medical lectures in Saudi Arabia using English as a medium of instruction*. Unpublished doctoral thesis. University of Birmingham, UK.

Ambrazaitis, G., & House, D. (2017). Multimodal prominences: exploring the patterning and usage of focal pitch accents, head beats and eyebrow beats in Swedish television news readings. Speech Communication. 95, 100–113.

Amundsen, C., & McAlpine, L. (2009). Learning Supervision: Trial by Fire. *Innovations in Education and Teaching International,* 46 (3), 331–342.

Antaki, C. (2013). Conversation analysis and identity in interaction. In C. A. Chapelle (ed.), *The Encyclopaedia of Applied Linguistics*, (pp. 1000–1004). Malden: Wiley Blackwell. Retrieved from https://onlinelibrary.wiley.com/doi/10.1002/9781405198431.wbeal0201

Antaki, C., & Widdicombe, S. (eds) (1998). *Identities in Talk*. London: Sage

Antas, J., & Gembalczyk, S. (2017). The bodily expression of negation in Polish. *Journal of Multimodal Communication Studies*, 4(1–2), 16–22.

Arminen, I. (2000). On the context sensitivity of institutional interaction. *Discourse and Society,* 11(4), 4–35.

Arroyo, J. L. B. (2011). From politeness to discourse marking: The process of pragmaticalisation of muy bien in vernacular Spanish. *Journal of Pragmatics*, 43, 855–874.

Artstein, R., & Poesio, M. (2008). Inter-coder agreement for computational linguistics. *Computational Linguistics*, 555–596.

Asmuß, B., (2011). Proposing shared knowledge as a means of pursuing agreement. In: T. Stivers, L. Mondada and J. Steensig (eds.), *The Morality of Knowledge in Conversation*, (pp. 207-234). Cambridge: Cambridge University Press.

Atkinson, D., Churchill, E., Nishino, T., & Okada, H. (2007). Alignment and interaction in a sociocognitive approach in second language acquisition. *Modern Language Journal*, 91, 169–188.

Babel, M., & Bulatov, D. (2011). The role of fundamental frequency in phonetic accommodation. *Language and Speech,* 55(2), 231–248.

Baiat, G.E., Coler, M., Pullen, M., Tienkouw, S., & Hunyadi, L. (2013). Multimodal analysis of *well* as a discourse marker in conversation: A pilot study. *Paper presented at 4th IEEE International Conference on Cognitive Infocommunications,* Budapest, Hungary.

Bao-Rozée J. (2016). *Using Multimodal Analysis to Investigate the Role of the Interpreter*, Unpublished Doctoral Thesis, University of Stirling, UK. Retrieved from https://pdfs.semanticscholar.org/1ea1/9c432bd2431a6eee1556305de6d2eba44c62.pdf

Baraldi, C. (2013). Forms of decision making: Gatekeeping and dialogic coordination in CISV organizational meetings. *Journal of Business Communication* 50(4), 339–361.

Barasch, A., & Berger, J. (2014). Broadcasting and Narrowcasting: How Audience Size Affects What People Share. *Journal of Marketing Research*, 51(3), 286–99.

Başol, H. & Kartal, G. (2019). The use of micro-level discourse markers in British and American feature-length films: Implications for teaching in EFL contexts. *Journal of Language and Linguistic Studies*, 15(1), 276-290.

Bateman, J. A., Wildfeuer, J., & Hiippala, T. (2017). *Multimodality: Foundations, research and analysis: A problem-oriented introduction*. Berlin: De Gruyter Mouton.

Baumeister, R. & Leary, M. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 27, 459–472.

Bavelas, J., Gerwing, J., & Healing, S. (2014). Including facial gestures in gesture speech ensembles. In M. Seyfeddinipur, & M. Gullberg (Eds.), *From Gesture in Conversation to Visible Action as Utterance: Essay in honor of Adam Kendon*, (pp. 15–34). Amsterdam, The Netherlands: John Benjamins.

Baxter, J. (2010). *The Language of Female Leadership*. Basingstoke: Palgrave Macmillan.

Baxter, J. (2011). Survival or success? A critical exploration of the use of double-voiced discourse by women business leaders in the UK. *Discourse & Communication*, 5(3), 231-145.

Baxter, J. (2014). *Doublce-voicing at Work: Power, Gender and Linguistic Expertise*. Basingstoke: Palgrave Macmillan.

Beattie, G. (1982). Turn-taking and interruption in political interviews: Margaret Thatcher and Jim Callaghan compared and contrasted. *Semiotica*, 39, 93–114.

Beattie, G. (2003). *Visible thought: The new psychology of body language*. London: Routledge

Bednarek, M., & Caple, H. (2017). Introducing a New Topology for (Multimodal) Discourse Analysis. *Proceedings from the 2017 International Systemic Functional Linguistics Congress*, 19-25. Wollongong, Australia.

Beeching, K. (2002). *Gender, politeness, and pragmatic particles in French*. Amsterdam/Philadelphia: John Benjamins.

Beeching, K. (2016). *Pragmatic Markers in British English: Meaning in Social Interaction*. Cambridge: Cambridge University Press.

Bednarek, M., & Caple, H. (2012). *News Discourse*. London/New York: Bloomsbury.

Belhiah, H. (2013). Gesture as a resource for intersubjectivity in second-language learning situations. *Classroom Discourse*, 4(2), 111–129.

Beckman, M., Hirschberg, J., & Shattuck-Hufnagel, S. (2005). The original ToBI system and the evolution of the ToBI framework. In S.-A. Jun (Ed.), *Prosodic typology: The phonology of intonation and phrasing* (pp. 9–54). Oxford & New York: Oxford University Press.

Bell, D. M. (1998). Cancellative Discourse Markers: A Core/periphery Approach. *Pragmatics*, 8, 515–541.

Bellés-Fortuño, B. (2016). Academic Discourse Markers: A Contrastive Analysis of the Discourse Marker *then* in English and Spanish Lectures. *Verbeia* 1, 57-78.

Benmore, A. (2016). Boundary management in doctoral supervision: How supervisors negotiate roles and role transitions throughout the supervisory journey. *Studies in Higher Education*, 41(7), 1251-1264.

Benwell, B., & Stokoe, E. (2006). *Discourse and Identity*. Edinburgh: Edinburgh University Press.

Bergmann, K., Aksu, V., & Kopp, S. (2011). The relation of speech and gestures: temporal synchrony follows semantic synchrony. In *Proceedings of the 2nd Workshop on Gesture and Speech in Interaction*, Bielefeld, Germany.

Bernad-Mechó & Fortanet-Gómez (2019). Organizational metadiscourse across lecturing styles. In C., S., Guinda (Ed.), *Engagement in Professional Genres*, (pp. 321-340). Amsterdam/Philadelphia: John Benjamins.

Berot, F. (2018). *Pragmatic Function and Frequency of the Discourse Markers Yeʕni, Êsta, Xoi, and Îtr in Spoken Contexts in Central Kurdish*. Unpublished PhD thesis, University of Leicester, UK.

Bezemer, J., & Kress, G. (2008). Writing in multimodal texts: A social semiotic account of designs for learning. *Written Communication*, 25(2), 166–195.

Bezemer, J., & Jewitt, C. (2009). Multimodal analysis: Key issues. In L. Litosseliti (Ed.), *Research Methods in Linguistics*, (pp. 180-197). London/New York: Continuum.

Biber, D. (2009). A corpus-driven approach to formulaic language in English: Multi-word patterns in speech and writing. *International Journal of Corpus Linguistics*, 14, 275–311.

Biber, D., & Reppen, R. (2015). *The Cambridge handbook of English corpus linguistics*. Cambridge: Cambridge University Press.

Björkman, B. (2015). PhD supervisor-PhD student interactions in an English-medium Higher Education (HE) setting: Expressing disagreement. *European Journal of Applied Linguistics,* 3(2), 205–229.

Björkman, B. (2017). PhD supervision meetings in an English as a Lingua Franca (ELF) setting: Linguistic competence and content knowledge as neutralizers of institutional and academic power. *Journal of English as a Lingua Franca* 6(1), 111–139.

Blakemore, D. (1987). *Semantic Constraints on Relevance.* Oxford: Blackwell

Blakemore, D. (1992). *Understanding Utterances: An Introduction to Pragmatics.* Oxford: Blackwell

Blakemore, D. (2002). *Relevance and Linguistic Meaning: The Semantics and Pragmatics of Discourse Markers.* Cambridge: Cambridge University Press.

Boas, H. (2010). On the equivalence and multifunctionality of discourse markers in language contact situations. In Harden, T. and Hentschel, E. (Eds.), 40 Jahre Partikelforschung, (301-315). Tuebingen: Stauffenburg Verlag. Retrieved from http://sites.la.utexas.edu/hcb/files/2012/01/Boas_2010_DM_TxG.pdf

Bolden, G. (2006). Little words that matter: Discourse markers *so* and *oh* and the doing of other-attentiveness in social interaction. *Journal of Communication*, 56, 661–688.

Bolden, G. (2008). So what's up?: Using the discourse marker *so* to launch conversational business. *Research on Language & Social Interaction*, 41(3), 302–327.

Bolden, G. (2009). Implementing incipient actions: The discourse marker *so* in English conversation*. Journal of Pragmatics*, 41, 974–998.

Bolden, G. (2018). Nu-prefaced responses in Russian conversation. In J. Heritage & M. Sorjonen (eds.) *Between Turn and Sequence. Turn-initial particles across languages,* (pp. 25-58). Amsterdam: John Benjamins.

Boersma, P., & Weenink, D. (2016). Praat: doing phonetics by computer [Computer program]. Version 6.0.09. Retrieved from http://www.praat.org/

Bolly, C., Crible, L., Degand, L., & Uygur-Distexhe, D. (2017). Towards a model for discourse marker annotation in spoken French: From potential to feature-based discourse markers, In C. Fedriani & A. Sanso (eds) *Discourse Markers, Pragmatic Markers, and Modal Particles*: *New Perspectives,* (71-98). Amsterdam: John Benjamins.

Borders, L.D. (1991). A systematic approach to peer group supervision, *Journal of Counseling & Development*, 69(3), pp. 248-252.

Bowker, D. (2012). *Okay? yeah? right?: negotiating understanding and agreement in master's supervision meetings with international students* Unpublished PhD thesis, University of Stirling, UK.

Brazil, D. (1997). *The Communicative Value of Intonation in English (second edition*). Cambridge: Cambridge University Press.

Brennan, S. (1996). Lexical entrainment in spontaneous dialog. in *Proceedings of the International Symposium on Spoken Dialogue*. Philadelphia, PA, 41–44.

Bressem, J., & Müller, C., (2014). The family of Away gestures: Negation, refusal, and negative assessment. In C. Müller, A. Cienki, E. Fricke, S. H. Ladewig, D. McNeill, & J. Bressem (Eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction (Handbooks of Linguistics and Communication Science 38.2.)*, (pp.1592–1604). Berlin/Boston: Mouton de Gruyter.

Bressem, J. and Müller, C. (2017). The negative-assessment construction: A multimodal pattern based on a recurrent gesture? *Linguistics Vanguard*, 3, 1–9.

Brinton, L. J. (1996). *Pragmatic markers in English. Grammaticalisation and discourse functions*. Berlin/New York: Mouton de Gruyter.

Brinton, L. J., (2008). *The Comment Clause in English. Syntactic Origins and Pragmatic Development*. Cambridge University Press: Cambridge.

Brinton, L. J. (2010). Discourse markers. In A. H. Jucker & I. Taavitsainen (Eds.), *Historical Pragmatics: Handbooks of pragmatics* (Vol. 8, pp. 285–314). Berlin/New York: De Gruyter Mouton.

Brinton, L. J. (2017). The Evolution of Pragmatic Markers in English: Pathways of Change. Cambridge University Press, Cambridge.

Brône, G. & Oben, B. (2015). InSight interaction: a multimodal and multifocal dialogue corpus. *Language Resources and Evaluation*, 49(1), 195-214.

Bruns, C., Varley, R., Zimmerer, V., Carragher, M., Brekelmans, G., & Beeke, S. (2018). "I don't know": a usage-based approach to familiar collocations in non-fluent aphasia. Aphasiology. 33. 1-23

Bryman A. (2016). Social research methods. 5th ed. Oxford: Oxford University Press.

Bunt,H., Kipp, M., and Petukhova, V. 2012 Using DiAML and ANVIL for multimodal dialogue annotation. In Proceedings 8th International Conference on Language Resources and Evaluation, Istanbul, May 2012. ELRA, Paris.

Bunz, U., & Campbell, S. W. (2004). Politeness accommodation in electronic mail. *Communication Research Reports*, 21, 11–25.

Buysse, L. (2007). Discourse marker so in the English of Flemish university students. Belgian Journal of English Language and Literatures, 5, 79–95.

Buysse, L. (2009). So as a marker of elaboration in native and non-native speech. In: Slembrouck, Stef, Taverniers, Miriam, Van Herreweghe, Mieke (Eds.), *From will to well: Studies in Linguistics offered to Anne-Marie Simon-Vandenbergen*. Academia Press, Gent, pp. 79-91.

Buysse, L. (2011). The business of pragmatics. The case of discourse markers in the speech of students of Business English and English Linguistics. ITL. *Journal of Applied Linguistics*, 161, 10-30.

Buysse, L. (2012). So as multifunctional discourse marker in native and learner speech. *Journal of Pragmatics*, 44, 1764–1782.

Buysse, L. (2014). We went to the restroom or something: General extenders and stuff in the speech of Dutch learners of English. In J. Romero-Trillo (Ed.), *The Yearbook of Corpus Linguistics and Pragmatics: New Empirical and Theoretical Paradigms* (pp. 213-237), Springer.

Buysse, L. (2017). The pragmatic marker you know in learner Englishes. J. *Pragmat*. 121, 40-57.

Bybee, J. (2010). *Language, Usage and Cognition*. Cambridge UP, Cambridge

Bybee, Joan L. and Joanne Scheibman. (1999). The effect of usage on degrees of constituency: the reduction of don't in English. *Linguistics* 37:575–96.

Cade, W. L., Lehman, B. A., & Olney, A. (2010). An exploration of off topic conversation, paper presented at *the Human Language Technologies: The 2010 Annual Conference of the North American Chapter of the ACL*, California, 1–6 June. Retrieved from https://www.aclweb.org/anthology/N10-1096.pdf

Calabrese, A., Costa, R., & Menichini, T. (2013). Using Fuzzy AHP to manage Intellectual Capital assets: an application to the ICT service industry. Expert Systems With Applications, 40 (9), 3747–3755.

Campbell, N., (2009). Tools and resources for visualising conversational-speech interaction. *Multimodal corpora*, pp. 176-188,

Carter, R., & McCarthy, M. (2006). *Cambridge grammar of English*. Cambridge, UK: Cambridge University Press

Castañeda, J.A. (2011). Teacher identity construction: Exploring the nature of becoming a primary school language teacher (unpublished Doctoral thesis). Newcastle University, UK. Retrieved from https://core.ac.uk/download/pdf/40013454.pdf

Casteele, A. V. & Collewaert, K. (2013). The Use of Discourse Markers in Spanish Language Learners' Written Compositions". *Procedia - Social and Behavioural Sciences,* 95, 550-556.

Caffi, C. (2007). Mitigation. Amsterdam: Elsevier.

Carter, R. (2003). The grammar of talk: Spoken English, grammar and the classroom. In Not Set (Ed*.), New Perspectives on English in the Classroom*, pp. 5–13. London: Qualifications and Curriculum Authority

Casasanto, D., & Jasmin, K. (2012). The hands of time: Temporal gestures in English speakers. *Cognitive Linguistics*, 23(4), 643-674

Castro, C. M. C. (2009). The use and functions of discourse markers in EFL classroom interaction. Profile,11, 57-77.

Chartrand, Tanya L., & John A. Bargh. (1999). The chameleon effect: The perception-behaviour link and social interaction. *Journal of Personality and Social Psychology*, 76. 893–910.

Cheng, W., Greaves, C. and Warren, M. (2008). *A Corpus-driven Study of Discourse Intonation*. Amsterdam: John Benjamins.

Cheng, W. & Warren. M. (2003). Indirectness, inexplicitness and vagueness made clearer. *Pragmatics*, 13(3), 381–400.

Cheshire, J. (2007). Discourse variation, grammaticalisation and stuff like that. *Journal of Sociolinguistics* 11(2), 155–193.

Chiang, S. (2009). Dealing with communication problems in the instructional interactions between international teaching assistants and American college students. *Language and Education*, 23(5), 461-478.

Cienki, A., & Müller, C. (2008). Metaphor, gesture, and thought. In R. W. J. Gibbs (Ed.), The cambridge handbook of metaphor and thought, (483-501). Cambridge: Cambridge University Press.

Clancy, P., A. Thompson, R. Suzuki & H. Tao (1996). The conversational use of reactive tokens in English, Japanese and Mandarin. *Journal of Pragmatics* 26: 355-387.

Clark, L. M., Ofemile, A. Y., Adolphs, S., & Tom, R. (2016). A Multimodal Approach to Assessing User Experiences with Agent Helpers. ACM Transactions on Interactive Intelligent Systems (TIIS), 6(4), 1-31.

Cogo, A. (2009). Accommodating difference in ELF conversations: A study of pragmatic strategies. In A. Mauranen, & E. Ranta (eds.), *English as a Lingua Franca: Studies and Findings* (pp. 254-273). Newcastle upon Tyne: Cambridge Scholars Press.

Cogo, A. (2012). ELF and super-diversity: a case study of ELF multilingual practices from a business context. *Journal of Egnlish as a Lingua Franca*, 1(2), 287-313

Connell, R. W. (1985). How to supervise a PhD. *Vestes*, 28(2), 38-42. Retrieved from http://files.eric.ed.gov/fulltext/EJ333265.pdf

Connell, R. & Manathunga, C. (2012). On doctoral education: How to supervise a PhD, 1985-2011. *Australian Universities' Review*, 54(1), 5-9. Retrieved from http://files.eric.ed.gov/fulltext/EJ968490.pdf

Kousidis, S., Malisz, Z., Wagner, P., & Schlangen, D. (2013). Exploring annotation of head gesture forms in spontaneous human interaction. *In Proceedings of the Tilburg gesture meeting (TiGeR*).

Couper-Kuhlen, E. (1993). English speech rhythm: Form and function in everyday verbal interaction. Amsterdam; Philadelphia: John Benjamins.

Couper-Kuhlen, E. (1996a). The prosody of repetition: On quoting and mimicry. In M. Selting & E. CouperKuhlen (Eds.), Prosody in conversation: Interactional studies (pp. 366–405). Cambridge, UK: Cambridge University Press.

Couper-Kuhlen, E. (1996b). Intonation and clause combining in discourse: The case of because. *Pragmatics*, 6(3): 389-426.

Couper-Kuhlen, E. (2001). Intonation and discourse: Current views from within. In D. Schiffrin, D. Tannen, & H. E. Hamilton (Eds.), The handbook of discourse analysis (pp. 13–34). Malden, MA; Oxford, UK: Blackwell

Couper-Kuhlen, E. (2004). Prosody and sequence organization in English conversation: The case of new beginnings. In E. Couper-Kuhlen & C. E. Ford (Eds.), *Sound patterns in interaction*, (335–376). Amsterdam: John Benjamins.

Couper-Kuhlen (2012). Exploring affiliation in the reception of conversational complaint stories. In Perakyla and Sorjonen (eds.) *Emotion in Interaction*. 113–146, Oxford University Press.

Craggs, R., & McGee Wood, M. (2005). Evaluating discourse and dialogue coding schemes. Computational Linguistics, 31(3):289–295.

Cravotta, A., Busà, M. G., & Prieto, P. (2018). Restraining and encouraging the use of hand gestures: Effects on speech. *Proceedings 9th International Conference on Speech Prosody* (pp. 206 –210). Poznan, Poland: ISCA.

Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry *Theory into Practice*, 39(3), 124-131.

Crible, L., Degand, L., & Gilquin, G. (2017). The clustering of Discourse markers and filled pauses. *Languages in Contrast,* 17(1), 69–95.

Crible, L. (2018). *Discourse Markers and (dis)fluency: Forms and functions across Languages and Registers*. Amsterdam/Philadelphia: John Benjamins.

Crible, L. & Degand, L. (2019). Reliability vs. granularity in discourse annotation: What is the trade-off, *Corpus Linguistics and Linguistic Theory*, 15(1), 71-100.

Crible, L. & Pascual, E. (2020). Combinations of discourse markers with repairs and repetitions in English, French and Spanish. *Journal of Pragmatics,* 156, 54-67. Retrieved from https://doi.org/10.1016/j.pragma.2019.05.002

Crossouard, B., & Pryor, J. (2009). Using email for formative assessment with professional doctorate students. *Assessment & Evaluation in Higher Education* 34(4): 377–88.

Croucher, S. M. (2004). Like, You Know, What I'm saying: A Study of Discourse Marker Frequency in Extemporaneous and Impromptu Speaking. National Forensic Journal, 22 (2), 38-47.

Cruttenden, A. (1986). *Intonation*. Cambridge, Cambridge University Press.

Cuenca, M. J. (2008). Pragmatic markers in contrast: The case of well. *Journal of Pragmatics*. 40(8), 1373-1391.

Cuenca, M. J. (2013). The Fuzzy Boundaries between Discourse Marking and Modal Marking. In L. Degand, B. CORNILLIE & P. PIETRANDREA (ed.), Discourse Markers and Modal Particles. Categorization and Description. Amsterdam: John Benjamins: 191-216

Cuenca, M. J. and Crible, L. (2019). Co-occurrence of Discourse Markers in English: from Juxtaposition to Composition. *Journal of Pragmatics* 140: 171-184

Cummins, F. (2012). Gaze and blinking in dyadic conversation: a study in coordinated behaviour among individuals. Lang. Cogn. Process. 27, 1525–1549.

Cutler, A. (1983). Speakers' conceptions of the function of prosody. In: A. Cutler, & D. R. Ladd (eds.). *Prosody: Models and measurements* (PP. 79-91). Heidelberg: Springer.

Danner, G. M. (2017*). Effects of speech context on characteristics of manual gesture*. Unpublished doctoral thesis, University of Southern California, Los Angeles, CA.

Davies, M. (2008). *Corpus of Contemporary American English.* Retrieved from http://corpus.byu.edu/coca

Davitti E and Pasquandrea S (2017) Embodied participation: what multimodal analysis can tell us about interpreter-mediated encounters in pedagogical settings. Journal of Pragmatics 107(January): 105–128

Debras, C. (2017). The shrug: forms and meanings of a compound enactment. *Gesture*, 16 (1), 1-34

Defour, T. (2010). The semantic-pragmatic development of well from the viewpoint of (inter) subjectification. In: Davidse, Kristin, Vandelanotte, Lieven, Cuyckens, Hubert (Eds.), Subjectification, Intersubjectification and Grammaticalization. Degruyter, Berlin, pp. 155--195.

Degand, L., & van Bergen, G. (2016). Discourse markers as turn transition devices: Evidence from speech and instant messaging. *Discourse Processes*, 55(1), 47–71.

Degand, L. (2019). The paradox of Discourse Markers: Evidence from production under cognitive load. *Paper presented at the 6th International Conference on Discourse Markers in Romance Languages,* University of Bergamo. Retrieved from file:///C:/Users/Kuser/Downloads/Degand2019-Bergamo.pdf

Deppermann, A. (2013). Multimodal interaction from a conversation analytic perspective. *Journal of Pragmatics* 46, 1-7.

de Klerk, V., (2005). Procedural meanings of well in a corpus of Xhosa English. *Journal of Pragmatics* 37, 1183–1205

de Kok, B.C. (2008). The role of context in conversation analysis: Reviving an interest in ethno-methods. *Journal of Pragmatics*, 40, 886-903.

de Marchena, A., & Eigsti, I. M. (2010). Conversational gestures in autism spectrum disorders: Asynchrony but not decreased frequency. *Autism Research*, 3, 311–322.

De Ruiter, J. P. (2000). The production of gesture and speech. In D. McNeill (Ed.), *Language and gesture* (pp. 284–311). Cambridge: Cambridge University Press.

De Ruiter, J. P., & De Beer, C. (2013). A critical evaluation of models of gesture and speech production for understanding gesture in aphasia. *Aphasiology*, 27(9), 1015–1030.

de Ruiter, J. P. (2017). The asymmetric redundancy of gesture and speech. In R. B. Church, M. W. Alibali, & S. D. Kelly (Eds.), *Why gesture? How the hands function in speaking, thinking and communicating* (Vol. 7, pp. 59–75). Philadelphia, PA: John Benjamins.

Delamont, S., Atkinson, P., & Parry, O. (2000). The doctoral experience: Success and failure in graduate school. London: Falmer Press

Delamont, S., Atkinson, P., & Parry, O. (2003). Supervising the PhD: A guide to success. Maidenhead, England: Open University Press.

Dér, C. (2010). On the status of discourse markers. *Acta Linguistica Hungarica* 57(1). 3–28

Deuchar, R. (2008). Facilitator, director or critical friend?: Contradiction and congruence in doctoral supervision styles, *Teaching in Higher Education*, 13(4): 489–500.

Dicks, B., Soyinka, B., & Coffey, A. (2006). Multimodal Ethnography, *Qualitative Research,* 6(1): 77–96.

Dimitrova, D. V., Chu, M., Wang, L., Ozyurek, A., & Hagoort, P. (2016). Beat that word: How listeners integrate beat gesture and focus in multimodal speech discourse. Journal of Cognitive Neuroscience, 28(9), 1255–1269

Djonov, E. N. (2005). Analysing the organisation of information in websites: From hypermedia design to systemic functional hypermedia discourse analysis. (unpublished doctoral dissertation). University of New South Wales, Sydney.

Doak, L. (2018). But I'd Rather Have Raisins! Exploring a Hybridized Approach to Multimodal Interaction in the Case of a Minimally Verbal Child with Autism. *Qualitative Research*, 19 (1): 30–54.

Dobrovoljc, K. (2017). Multi-word discourse markers and their corpus-driven identification. *International Journal of Corpus Linguistics*, *22*(4), 551-582.

Doehler, S. (2019). At the Interface of Grammar and the Body: Chais pas ("dunno") as a Resource for Dealing with Lack of Recipient Response. Research on Language and Social Interaction. 1-23.

Doloriert, C., S. Sambrook, and J. Stewart. (2012). Power and Emotion in Doctoral Supervision: Implications for HRD. *European Journal of Training and Development,* 36 (7), 732–750.

Dong J and Buckingham L (2018). The textual colligation of stance phraseology in cross-disciplinary academic discourse: The timing of authors' self-projection. *International Journal of Corpus Linguistics* 23(4): 409–437.

Du Bois, J. W. (2007). The stance triangle. In R. Englebretwson (Ed.), *Stance taking in discourse: Subjectivity, evaluation, interaction,* (139–182). Amsterdam, Netherlands: John Benjamins.

Dupret, B., Lynch, M. & Berard, T. (2015). *Law at work: Studies in legal ethnomethods*. Oxford: Oxford University Press.

Dudley-Evans, T. (1994). Variations in the discourse patterns favoured by different disciplines and their pedagogical implications. In J. Flowerdew (Ed.), *Academic listening,* (pp. 146–159). Cambridge: Cambridge University Press.

Duran, D., and O. Sert. (2019). Preference Organization in English as a Medium of Instruction Classrooms in a Turkish Higher Education Setting." Linguistics and Education 49: 72–85.

Dutcher, L. R. (2018). Interaction and Collaboration across Proficiency Levels in the English Language Classroom (Ph. D. Dissertation). University of Sydney, Sydney.

Edlund, J., Heldner, M., & Hirschberg, J. (2009). Pause and gap length in face-to-face interaction. In *Proceedings of the tenth annual conference of the International Speech Communication Association (Interspeech 2009*), Brighton, UK (pp. 2779–2782).

Efron, D. (1972). *Gesture, Race and Culture*. Den Haag: Mouton and Co.

Enfield, N. J. (2005). The body as a cognitive artifact in kinship representations: Hand gesture diagrams by speakers of Lao. *Current Anthropology*, 46(1), 1-26.

Enfield, N. J. (2009). The anatomy of meaning: Speech, gesture and composite utterances. Cambridge: Cambridge University Press.

Enfield, N. J. (2011). Sources of asymmetry in human interaction: Enchrony, status, knowledge and agency. In Tanya Stivers, Lorenza Mondada, & Jacob Steensig (eds.), *The morality of knowledge in conversation*, (285–312). Cambridge: Cambridge University Press.

Erman, B. (1987). *Pragmatic expressions in English: a study of you know, you see and I mean in face-to-face conversation*. Stockholm: English Department, Stockholm University.

Escalera, E. (2009). Gender differences in children's use of discourse markers: Separate worlds or different contexts, *Journal of Pragmatics* 41, 1887–1907.

Esteve-Gibert, N., & Prieto, P. (2013). Prosodic structure shapes the temporal realization of intonation and manual gesture movements. *Journal of Speech, Language, and Hearing Research*, 850-864.

Etehadieh, E., &Rendle-Short, J. (2016). Intersubjectivity or Preference: Interpreting Student Pauses in Supervisory Meetings. *Australian Journal of Linguistics,* 36:2, 172-188.

Evnitskaya, N., & Jakonen, T. (2017). Multimodal Conversation Analysis and CLIL Classroom Practices. In A. Llinares & T. Morton (Eds.), *Applied Linguistics Perspectives on CLIL*, Language Learning & Language Teaching (pp. 201–220). Amsterdam: John Benjamins.

Farahian, M., & Rezaee, M. (2012). A case study of an EFL teacher's type of questions: an investigation into classroom interaction. Procedia - Social and Behavioural Sciences, 47, 161-167

Fedriani, C. and Sansò A. (2017). Pragmatic Markers, Discourse Markers and Modal Particles: New Perspectives, Amsterdam: John Benjamins.

Ferré, G. (2011). Multimodal Analysis of Discourse Markers 'donc', 'alors' and 'en fait' in Conversational French. International Congress of Phonetic Sciences XVII:671-674.

Ferré, G. (2011). Functions of three open-palm hand gestures. *Multimodal Commun*. 1, 5–20.

Fiorentini, I., & Sansò, A. (2017). Reformulation markers and their functions: Two case studies from Italian. *Journal of Pragmatics*, 120, 54–72.

Fischer, K. (ed.) (2006). *Approaches to Discourse Particles*. Amsterdam: Elsevier.

Fischer, K. (2014). Discourse Markers. In W. Bublitz, A. H. Jucker, & K. P. Schneider (Eds.), *Handbook of Pragmatics*, 3, (pp. 271–294). Berlin: De Gruyter Mouton. Retrieved from https://doi.org/10.1002/9781405198431.wbeal0330

Fisk, M., & Vaarala, S. (2017). *The use of communication accommodation strategies in a workgroup. A case study of four meetings*. Retrieved from https://jyx.jyu.fi/bitstream/handle/123456789/53289/5/URN_NBN_fi_jyu-201703161677.pdf

Flecha-Garcı´a, M. L. (2010). Eyebrow raises in dialogue and their relation to discourse structure, utterance function and pitch accents in English. *Speech Communication*, 52, 542–554.

Flowerdew, John. (2018). Critical discourse studies and context In Flowerdew, J. Richardson E. (Eds), The Routledge Handbook of Critical Discourse Studies. Abingdon: Routledge, (165-178).

Floyd, S., Manrique, E., Rossi, G., and Torreira, F. (2016). The timing of visual bodily behaviour in repair sequences: evidence from three languages. *Discourse Processes*, 53(3), 175-204.

Foolen, A. (2011). Pragmatic markers in a socio-pragmatic perspective. In *Pragmatics of Society*, ed. by G. Andersen and K. Aijmer, (pp. 217-242). De Gruyter, Berlin.

Fox Tree, J., Schrock, E., & Josef, C. (2002). Basic meanings of you know and I mean. Journal of Pragmatics 34 (6), 727-747.

Fraser, B. (1988). Types of English discourse markers, *Acta Linguistica Hungarica*, 38 (1-4), 19-33.

Fraser, B. (1990). An approach to discourse markers, *Journal of Pragmatics*, (14), 383-395.

Fraser, B. (1996). Pragmatic markers. *Pragmatics*, 6, 167-190.

Fraser, B. (1999). What are discourse markers. *Journal of Pragmatics,* 31(7), 931-952.

Fraser, B. (2006). Towards a theory of discourse markers. In K. Fischer (Ed.), *Approaches to Discourse Particles*. (189-204). Elsevier: Amsterdam.

Fraser, B. (2010). Pragmatic Competence: The Case of Hedging. In G. Kaltenböck, W. Mihatsch & S. Schneider (Eds.). New Approaches to Hedging 1st ed. (15-34). Bingley, UK: Emerald Group Publishing Limited.

French, P., & Local, J. (1986). Prosodic features and the management of interruptions. In C. Johns-Lewis (Ed.), *Intonation in discourse* (157–180). London: Croom Helm.

Friedberg, H., Litman, D., and Paletz, S. B. F. (2012). Lexical entrainment and success in student engineering groups. In *Proceedings Fourth IEEE Workshop on Spoken Language Technology (SLT),* Miami, Florida.

Fuschi, L. (2015). Discourse Markers in Spoken Italian. The Functions of senti and guarda. unpublished doctoral thesis. University of Bielefeld, Germany.

Fukushima, S. (2015). In search of another understanding of politeness: From the perspective of attentiveness. *Journal of Politeness Research*, 11(2), 261–287

Fuller, J. (2003). Discourse marker use across speech contexts: a comparison of native and non-native speaker performance. *Multilingua*, 22, 185-208.

Fung, L, & Carter, R. (2007). Discourse markers and spoken English: native and learner use in pedagogic settings. *Applied Linguistics* 28 (3), 410-439.

Furkó, P. B. (2005). *The pragmatic marker–discourse marker dichotomy reconsidered: The case of well and of course*. Unpublished doctoral dissertation, Debreceni Egyetem Bölcsészettudományi Kar, Debrecen, Hungary.

Furkó P. B. (2013). The Presence and Absence of Pragmatic Markers in Naturally-Occurring and Scripted Discourse. In Presences and Absences − Transdisciplinary Essays, ed. Katarína Labudova and Nóra Séllei, 23–38. Tyneside: Cambridge Scholars Publishing.

Furkó P. B. (2014). Cooptation over Grammaticalization – The Characteristics of Discourse Markers Reconsidered. *Argumentum* 10: 289–300.

Furkó, P. B. (2017). *Manipulative uses of pragmatic markers in political discourse*. Palgrave Communications 3.

Furkó P.B. (2019). The Boundaries of Discourse Markers: Drawing Lines through Manual and Automatic Annotation. *Acta Universitatis Sapientiae Philologica* 10 (2): 155–170.

Furkó P.B. (2020). Discourse Markers in Natural Conversations, Scripted Conversations and Political Interviews: Core and Peripheral Uses. In: *Discourse Markers and Beyond. Postdisciplinary Studies in Discourse.* Palgrave Macmillan, Cham

Gablasova, D., Brezina, V., & McEnery, T. (2017). Exploring learner language through corpora: Comparing and interpreting corpus frequency information. *Language Learning*, 67, 130–154.

Gablasova, D., Brezina, V., McEnery, T., & Boyd, E. (2015). Epistemic stance in spoken L2 English: The effect of task type and speaker style. Applied Linguistics.

Galloway, N. & Rose, H. (2015). Introducing global Englishes. London: Routledge.

Gumperz, J. (1982). *Discourse Strategies*. Cambridge: Cambridge University Press.

García Vizcaíno, María José, Martínez-Cabeza, Miguel A., (2005). The pragmatics of well and bueno in English and Spanish. *Intercult. Pragmat*. 2 (1), 69—92

Garcia, A. (2017). What went right: Interactional strategies for managing crisis negotiations during an emergency ser-vice call. *The Sociological Quarterly*, 58(3), 495–518.

García, M. G. (2020). Turn-Initial Discourse Markers in L2 Spanish Conversations: Insights from Conversation Analysis. *Corpus Pragmatics.* Retrieved from https://link.springer.com/content/pdf/10.1007/s41701-019-00075-8.pdf

Gardner, R. (2004). Conversation Analysis. In A. Davies & C. Elder (Eds.), *The Handbook of Applied Linguistics* (pp. 262–284). Oxford: Blackwell.

Gatfield, T. (2005). An investigation into PhD supervisory management styles: Development of a dynamic conceptual model and its managerial implications. Journal of Higher Education Policy and Management,27, 311-325

Gatfield, T., and Alpert, F. (2002). The supervisory management styles model. *In Proceedings of the 2002 Annual International Conference of Higher Education Research and Development Society of Australasia*, ed. A. Goody, J. Herrington and M. Northcote, 263-273. Perth, Australia: Higher Education Research and Development Society of Australasia

Gao, F., & Wang, B. (2018). forthcoming. Multimodal corpus approach to dialogue interpreting studies in the Chinese context: Towards a multi-layer analytic framework. *The Interpreters' Newsletter*. (22), 17-38

García G. (2020). Turn-Initial Discourse Markers in L2 Spanish Conversations: Insights from Conversation Analysis. Corpus Pragmatics. Retrieved from https://doi.org/10.1007/s41701-019-00075-8

Gassner, D. (2012). Vague language that is rarely vague: A case study of 'thing' in L1 and L2 discourse. *International Review of Pragmatics.* 4, 3–28.

Gao, F., & Wang, B. (2018). A Multimodal Corpus Approach to Dialogue Interpreting Studies in the Chinese Context: Towards a multi-layer analytic framework, *The Interpreters' Newsletter*, 22: 17-38.

Giles, H., Coupland, N., & Coupland, J. (1991). Accommodation theory: Communication, context, and consequence. In H. Giles, J. Coupland, & N. Coupland (Eds.), *Contexts of accommodation: Developments in applied sociolinguistics,* (pp. 1–68). Cambridge, England: Cambridge University Press.

Giles, H., Mulac, A., Bradac, J. J., & Johnson, P. (1987). Speech accommodation theory: The first decade and beyond. In M. McLaughlin (Ed.), *Communication yearbook* 10 (pp. 13-48). Newbury Park, CA: Sage

Gillespie, A., & Cornish, F. (2010). Intersubjectivity: Towards a Dialogical Analysis. *Journal for the Theory of Social Behaviour* 40 (1): 19–46.

Girgin, U., & Brandt, A. (2020). Creating space for learning through 'Mm hm' in a L2 classroom: Implications for L2 classroom interactional competence, Classroom Discourse, 11(1), 61-79.

Givens, D. (1976). An Ethological Approach to the Study of Human Nonverbal Communication (University of Washington Ph.D. dissertation in Anthropology, Ann Arbor: University Microfilms).

Givens, D. (2002). *The nonverbal dictionary of gestures, signs and body language cue.* Centre for Nonverbal Studies Press, Sokane: WA.

Goffman, E. (1967). *Interaction ritual: Essays on face-to-face behaviour*. Garden City: Doubleday.

Goffman, E. (1981). Radio talk. In E. Goffmann (ed.). *Forms of talk (PP. 197-330)*. Oxford: Blackwell.

Goldin-Meadow S. (2003). *Hearing gesture: How our hands help us think*. Cambridge, MA: Harvard University Press.

Goldin-Meadow, S., & Alibali, M. W. (2013). Gesture's role in speaking, learning and creating language. *Annual Review of Psychology*, 64, 257–283.

Gonen, E., Livnat, Z. & Amir, N. (2015). The discourse marker axshav ('now') in spontaneous spoken Hebrew: Discursive and prosodic features*. Journal of Pragmatics* 89: 69-84.

González, M. (2004). *Pragmatic Markers in Oral Narrative: The Case of English and Catalan.* John Benjamins, Amsterdam/Philadelphia.

Goode, J. (2010). Perhaps I should be more proactive in changing my own supervisions. In M. Walker and P. Thomson (Eds.). *The Routledge doctoral supervisor's companion: Supporting effective research in education and the social sciences*, (pp. 38 – 50). London: Routledge.

Goodwin, C. (2000). Action and embodiment within situated human interaction. *Journal of Pragmatics*, 32, 1489–1522

Grant, B. (2003). Mapping the Pleasures and Risks of Supervision." Discourse: Studies in the Cultural Politics of Education 24 (2): 175–190.

Grant, B. M. (2005). Fighting for Space in Supervision: Fantasies, Fairytales, Fictions and Fallacies. *International Journal of Qualitative Studies in Education* 18 (3): 337–354.

Grant, L. E. (2010). A corpus comparison of the use of I don't know by British and New Zealand speakers. *Journal of Pragmatics,* 42, 2282–2296.

Gravano, A., Benus, S., Hirschberg, J., German, E. S., and Ward, G. (2008). The effect of prosody and semantic modality on the assessment of speaker certainty. *Proceedings of 4th Speech Prosody Conference*, Campinas, Brazil, 2008.

Gumperz, John (1982). *Discourse strategies*. Cambridge: Cambridge University Press.

Gurr, G. M. (2001). Negotiating the rackety bridge: A dynamic model for aligning supervisory style with research student development. *Higher Education Research & Development*, 20, 81–92.

Gustafsson, J. (2017). Single Case Studies Vs. Multiple Case Studies: A Comparative Study. Academy of Business, Engineering and Science, Halmstad University, Halmstad, Sweden. Retrieved from http://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf

Habets, B., Kita, S., Shao, Z., Ö zyurek, A., & Hagoort, P. (2010). The role of synchrony and ambiguity in speech-gestureintegration during comprehension. Journal of CognitiveNeuroscience, Early Access, 1–10.

Håkansson, J. (2012). The use of personal pronouns in political speech: A comparative study of the pronominal choices of two American presidents. (Unpublished bachelor dissertation). Linnæus University, United States of America. Retrieved from http://www.diva-portal.org/smash/get/diva2:531167/fulltext01.pdf

Hale, S. B. 2004. The Discourse of Court Interpreting: Discourse Practices of the Law, the Witness and the Interpreter. Amsterdam: Benjamins

Hall, D. E. (2004). *Subjectivity*. London, Routledge.

Halliday, M.A.K. (1967) Intonation and Grammar in British English. The Hague: Mouton.

Halliday, M.A.K. (1970) A Course in Spoken English: Intonation. London: Oxford University Press

Halliday, M.A.K. (1978) *Language as Social Semiotic: The Social Interpretation of Language and Meaning*. London: Edward Arnold.

Halliday, M.A.K. (1985). Part A. In M.A.K. Halliday and R. Hasan (Eds.), Language, context, and text: Aspects of language in a social-semiotic perspective (1-49). Geelong, Victoria: Deakin University Press.

Halliday, M. a. K., & Hasan, R. (1976). *Cohesion in English*. London: Longman.

Halliday, M.A.K. & Matthiessen, C.M.I.M. (2004). An introduction to functional grammar (3rd edition). London: Arnold

Halse, C. (2011). 'Becoming a supervisor': The impact of doctoral supervision on supervisors' learning. Studies in Higher Education,36, 557-570.

Hansen, M. B. M. (1998). *The function of discourse particles: A study with special reference to spoken standard French*. Amsterdam: John Benjamins Publishing

Hansen, M. B. M. (2003). Review of [Blakemore 2002]. *cta Linguistica Hafniensia* 35, 190–206.

Hansen, M. B. M. (2006). A dynamic polysemy approach to the lexical semantics of discourse markers (with an exemplary analysis of French toujours). In Kerstin Fischer (ed.), *Approaches to discourse particles*, (21–41). Amsterdam: Elsevier.

Hargie, O. (2011). *Skilled interpersonal communication; Research, theory and practice* (5th ed.). London, UK: Routledge

Hargie, O. (2014). Communication accommodation in a divided society: Interaction patterns between Protestants and Catholics in Northern Ireland. *Studies in Communication Science*, 14, 78–85.

Hargie, O., & Dickson, D. (2004). *Skilled interpersonal communication; Research, theory and practice* (4th ed.). London, UK: Routledge.

Harrison, S. (2009). The expression of negation through grammar and gestures. In J. Zlatev, M. Andrén, M. Johansson Falck & C. Lundmark (Eds.), Studies in language and cognition (pp. 421–435). Newcastle: Cambridge Scholars.

Harrison, S., & Larrivée, P. (2016). Morphosyntactic correlates of gestures: A gesture associated with negation in French and its organisation with speech. In P. Larrivée & Ch. Lee (Eds.), *Negation and polarity: Experimental Perspectives* (pp. 75–94). Dordrecht: Springer

Harwood, N. and Petric, B. (2019). Helping international master's students navigate dissertation supervision: research-informed discussion and awareness-raising activities. Journal of International Students, 9 (1). pp. 150-171.

Harwood, N. & Petrić, B. (2020). Adaptive master's dissertation supervision: a longitudinal case study, *Teaching in Higher Education,* 25(1), 68-83.

Haselow, A. (2011). Discourse marker and modal particle: The functions of utterance final then in spoken English. *Journal of Pragmatics*, 43(14), 3603–3623.

Haselow, A. (2019). Discourse marker sequences: insights into the serial order of communicative tasks in real-time turn production, *Journal of Pragmatics*. 146, 1-18.

Hayano K. (2011). Giving support to the claim of epistemic primacy: Yo-marked assessments in Japanese. In: Stivers T, Lorenza M and Steensig J (eds) *The Morality of Knowledge in Conversation*. Cambridge: Cambridge University Press, pp. 58–81

Hayashi, M. (2005). Joint turn construction through language and the body: Notes on embodiment in coordinated participation in situated activities. *Semiotica*, 156(1/4), 21-53.

Hazel, S. & Mortensen, K. (2014). Embodying the institution: Object manipulation in developing interaction in study counselling meetings. *Journal of Pragmatics*, 65, 10-29.

Heath, T. (2002). A quantitative analysis of PhD students' views of supervision. *Higher Education Research & Development*, 21(1), 41–53.

Heath C. (2004). Analyzing face-to-face interaction: video, the visual and material, In. D. Silverman (Ed.), *Qualitative Research: Theory, Method and Practice*. London, UK: Sage.

Heath, C., & Luff, P. (2013). Embodied action and organisational interaction: Establishing contract on the strike of a hammer. *Journal of Pragmatics*, 46, 24-38.

Hei, K. C., David, M. K., & Kia, L. S. (2013). Politeness of front counter staff of Malaysian private hospitals. *GEMA Online Journal of Language Studies*, 13(1), 5-23

Hellermann, J., & Vergun, A. (2007). Language which is not taught: The discourse marker use of beginning adult learners of English. *Journal of Pragmatics*, 39 (1), 157- 179.

Henricson, Sofie and Marie Nelson. (2017). Giving and receiving advice in higher education. Comparing Sweden-Swedish and Finland-Swedish supervision meetings. Journal of Pragmatics 109. 105–120.

Heritage, J. (2012). Epistemics in action: Action formation and territories of knowledge. Research on Language and Social Interaction, 45, 1–29.

Heritage, J. (2013). Action formation and its epistemic (and other) backgrounds. Discourse Studies, 15, 547–574.

Heritage J (2015). Well-prefaced turns in English conversation: A conversation analytic perspective. *Journal of Pragmatics* 88: 88–104.

Heritage, J. (2017). Turn-Initial Particles in English: The Cases of Oh and Well. Turn-Initial Particles Across Languages. Amsterdam: John Benjamins.

Hernández López, M. (2008). Rapport management under examination in the context of medical consultations in Spain and Britain. *Revista Alicantina de Estudios Ingleses* 21. 57-86.

Heron, M. & Webster, J. (2019). Scaffolding talk in EAP lessons: an examination of experienced teachers' practices, Innovation in Language Learning and Teaching, 13:4, 358-370.

Hiippala, T. (2017). The Multimodality of Digital Longform Journalism. *Digital Journalism*, 5(4): 420–442.

Ho, B. (2011). Solving the problems of designing and teaching a packed English for specific purposes course. *New Horizon in Education*, 59(1), 119-136.

Ho, S., Foulsham, T., & Kingstone, A. (2015). Speaking and listening with the eyes: Gaze signaling during dyadic interactions. Plos ONE, 10(8), e0136905

Hoey, E. M., & Kendrick, K. H. (2017). Conversation analysis. In A. M. B. de Groot & P. Hagoort (Eds.), *Research methods in psycholinguistics: A practical guide* (pp. 151–173). Hoboken, NJ: Wiley Blackwell.

Hoff, E. (2010). Context effects on young children's language use: the influence of conversational setting and partner. *First Language*, 30, 461–472.

Holler, J., Wilkin, K., (2011). Co-Speech Gesture Mimicry in the Process of Collaborative Referring During Face-to-Face Dialogue. *Journal of Nonverbal Behaviour* 35, 133-153.

Holmes, J., & Stubbe, M. (2003*). Power and politeness in the workplace: A sociolinguistic analysis of talk at work*. Harlow: Pearson

Holsanova, J. (2013). Reception of Multimodality: Applying eye-tracking methodology in multimodal research. In C. Jewitt (ed.), Routledge Handbook of Multimodal Analysis. Second edition. London: Routledge.

Hostetter, A. B., & Alibali, M. W. (2008). Visible embodiment: Gestures as simulated action. *Psychonomic Bulletin & Review*, 15(3), 495–514. Retrieved from https://doi.org/10.3758/PBR.15.3.495

House, J. (2006). Constructing a context with intonation. *Journal of Pragmatics*, 38(10), 1542–1558.

House, J. (2009). Prosody and context selection: A procedural approach. In D. Barth-Weingarten, A. Wichmann, & N. Dehé (Eds.), Where prosody meets pragmatics (pp. 129–142). Bingley: Emerald.

House, J. (2013). Developing pragmatic competence in English as a lingua franca: Using discourse markers to express (inter)subjectivity and connectivity. *Journal of Pragmatics,* 59, 57-67.

Hunyadi, L., Kiss, H., & Szekrényes, I. (2016). Prosody enhances cognitive info-communication: materials from the HuComTech corpus.

Hunyadi, L., Kiss, H., Szekrényes, I. (2016). Prosody enhances cognitive info-communication: Materials from the hucomtech corpus. In A. Esposito and C. L. Jain, (Eds). *Toward Robotic Socially Believable Behaving Systems - Volume I: Modelling Emotions* (pp. 183–204). Cham: Springer International Publishing.

Hutchby, I., (2002). Resisting the incitement to talk in child counselling: Aspects of the utterance ‘‘I don’t know’’. Discourse Stud. 4, 147--168.

Hymes, D. H. (1974). *Foundations in sociolinguistics: An ethnographic approach*. Philadephia: University of Pennsylvania Press.

Inbar, Anna & Leon Shor. (2019). Covert negation in Israeli Hebrew: Evidence from co-speech gestures. *Journal of Pragmatics* 143, 85–95.

Inigo-Mora, I. (2004). On the Use of the Personal Pronoun We in Communities. *Journal of Language and Politics*, 3 (1), 27–52.

Innes, Bronwen. (2010). Well, That’s Why I Asked the Question Sir’: Well as a Discourse Marker in Court. *Language in Society* 39 (1): 95–117.

Jefferson, G. (1985). An exercise in the transcription and analysis of laughter. In T. A. van Dijk (ed.), *Handbook of Discourse Analysis,* Vol. 3 (pp. 25-34). New York: NY Academic Press.

Jefferson, G. (2004). Glossary of transcript symbols with an introduction. In G.H. Lerner (ed.), Conversation analysis: Studies from the first generation (pp. 13-31). Amsterdam/Philadelphia: John Benjamin.

Jewitt, C. (2008). *Technology, literacy, learning: A multimodality approach*, London/New York: Routledge.

Jewitt, C. (Ed.). (2009a) *The Routledge handbook of multimodal analysis*. London & New York: Routledge.

Jewitt, C. (2009b). Different approaches to multimodality. In C. Jewitt (Ed.), The Routledge handbook of multimodal analysis (28-39). London & New York: Routledge.

Jackson, C. & Jones, D., (2013). Well they had a couple of bats to be truthful: Well-prefaced, self-initiated repairs in managing relevant accuracy in interaction. *Journal of Pragmatics* 47(1). 28-40.

Jarrah, M. (2013). Application of Schourup (1999). Characteristics on the Arabic Contrastive Discourse Markers. *Global Journal of Human Social Science Linguistics & Education 13(4), 51-62.*

Jeong, S. (2018). Intonation and Sentence Type Conventions: Two Types of Rising Declaratives. *Journal of Semantics*,

Johnson, A. (2002). So..?: Pragmatic implications of so-prefaced questions in formal police interviews. In J. Cotterill (Ed.), *Language in the legal process* (pp. 91–110). New York: Palgrave Macmillan

Johnson, K. (1991). Miscommunication in interpreted classroom interaction. Sign Language Studies, 70, 1–34

Jones, R. H. (2016). *Spoken discourse*. London & New York: Bloomsbury Academic.

Jucker, A., & Ziv, Y. (1998). *Discourse Markers: Descriptions and Theory*. Amsterdam: John Benjamins.

Kamio, A. (1994). The theory of territory of information: The case of Japanese. *Journal of Pragmatics*, 21:67-100.

Kamio, A. (1995). Territory of information in English and Japanese, and psychological utterances." *Journal of pragmatics*, 24, 235-264.

Kamio, A. (1997). *Territory of Information*. Amsterdam: John Benjamins Publishing.

Kamler, B., & Thomson, P. (2006). *Helping doctoral students write: pedagogies for supervision*. Abingdon: Routledge.

Kandiko, C. B. & Kinchin, I. M. (2013). Developing discourses of knowledge and understanding: longitudinal studies of Ph.D. supervision. *London Review of Education*, 11(1), 46-58

Kärkkäinen, E. (2003). *Epistemic stance in English conversation: A description of its interactional functions, with a focus on I think.* Philadelphia, PA: John Benjamins Publishing.

Kärkkäinen, E. (2007). The role of I guess in conversational stancetaking. *Englebretson,* 183–219.

Kaur, J. (2011). Raising explicitness through self-repair in English as a lingua franca. *Journal of Pragmatics* 43(11). 2704–2715.

Kaur, J. (2012). Saying it again: enhancing clarity in English as a lingua franca (ELF) talk through self-repetition. *Text Talk* 32(5), 593-613.

Kawamori, A., Kawabata, M., & Shimazu, T. (1996). A phonological study on Japanese discourse markers. *Language*, 297, 306.

Kecskes, I. (2008). Dueling Contexts: A Dynamic Model of Meaning. *Journal of Pragmatics,* 40: 385–406.

Kecskes, I. (2013). *Intercultural pragmatics*. Oxford: Oxford University Press.

Keevallik, L., (2006). From discourse pattern to epistemic marker: Estonian (ei) tea'(don't) know. *Nordic J. Linguist*. 29 (2), 173--200.

Keevallik, L., (2011). The terms of not knowing. In: Stivers, T., Mondada, L., Steensig, J. (Eds.), The *Morality of Knowledge in Conversation* (pp. 184—206). Cambridge: Cambridge University Press,.

Keevallik, L. (2016). Abandoning dead ends: the Estonian junction marker maitea 'I don't know'. *J. Pragmat*. 106, 115e128.

Kendon, A. (1967). Some functions of gaze-direction in social interaction. *Acta Psychol.* 26, 22–63.

Kendon, A. (1978). Looking in conversation and the regulation of turns at talks: A comment on the papers of G. Beattie and D.R. Rutter et al. British Journal of Social and Clinical Psychology. 17, 23-24.

Kendon, A. (1983). Gesture and speech: How they interact. In J. M. Wiemann & R.P. Harrison (Eds.), *Nonverbal interaction* (pp. 13-45). Beverly Hills: SAGE.

Kendon, A. (1996). Reflections on the study of gesture. *Visual Anthropology*, 8, 121- 131.

Kendon, A. (2002). Some uses of the head shake. *Gesture* 2(2), 147-182.

Kendon, A. (2004). *Gesture: Visible action as utterance*. Cambridge: Cambridge University Press.

Kendon, A. (2010). Spacing and orientation in co-present interaction in development of multimodal interfaces: Active listening and synchrony. *Lectures Notes in Computer Science*, 5967. 1-15

Kendrick, K. H. (2015). The intersection of turn-taking and repair: The timing of other-initiations of repair in conversation. *Frontiers in Psychology*, 6, 250. Retrieved from https://doi.org/10.3389/fpsyg.2015.00250

Kendrick, K., & Holler, J. (2017). Gaze direction signals response preference in conversation. *Research on Language and Social Interaction*, 50(1), 12–32.

Kendrick, K., & Torreira, F. (2015). The timing and construction of preference: a quantitative study. *Discourse Process*. 52(4), 255-289.

Kiley, M. (2011). Developments in Research Supervisor Training: Causes and Responses. *Studies in Higher Education* 36: 585–99.

Kim, H. R. S. (2013). Retroactive indexing of relevance: The use of well in third position. *Research on Language and Social Interaction*, 46(2), 125-143.

Kim, H. R. S. (2015). Self-voice -nikka in the Korean language. *Journal of Pragmatics*, 88, 73-87.

Kim, H. R. S., & Kuroshima, S. (2013). Turn beginnings in interaction: An introduction. *Journal of Pragmatics*, 57, 267–273.

Kipp, M., Neff, M., & Albrecht, I. (2006). An Annotation Scheme for Conversational Gestures: How to economically capture timing and form. *In Proceedings of the Workshop on Multimodal Corpora (LREC'06)*. 24–27.

Kirkham, S. (2011). Personal Style and Epistemic Stance in Classroom Discussion. *Language and Literature* 20 (3): 1–43

Kita, S., & Özyürek, A. (2003). What does cross-linguistic variation in semantic coordination of speech and gesture reveal: Evidence for an interface representation of spatial thinking and speaking. *Journal of Memory and Language*, 48, 16–32.

Knight, D., (2011). The future of multimodal corpora, Revista Brasileira de Lingistica Aplicada, (11), 391-415

Knight, D., & Adolphs, S. (2008). Multi-modal corpus pragmatics: the case of active listenership. In J. Romeo (ed.) *Corpus and Pragmatics*, (pp. 175–90). Berlinand New York: Mouton de Gruyter.

Knight, D., Tennent, P. , Adolphs, S. and Carter, R. , “Developing heterogeneous corpora using the Digital Replay System (DRS),” in Language Resources Evaluation Conference Workshop on Multimodal Corpora: Advances in Capturing, Coding and Analyzing Multimodality, Valletta, Malta, 2010

Kobayashi, S., Grout, B., & Rump, C. Ø. (2013). Interaction and learning in PhD supervision–A qualitative study of supervision with multiple supervisors. *Danish Journal of Teaching and Learning in Higher Education*, 8, 13–25.

Koczogh and Furkó. (2011). Gender Differences in the Use of the Discourse Markers You Know and I Mean: “It’s just like, dude, seriously, it’s been a bad week, I mean, kind of thing.”. Argumentum (7), 1-18. Retrieved from https://www.academia.edu/2537039/Gender_differences_in_the_use_of_the_discourse_markers_you_know_and_I_mean

Komar, S. (2007). The interface between intonation and function of discourse markers in English. In S. Komar and U. Mozetič, *Studies in the English language and literature in Slovenia* (Volume IV/1-2). Ljubljana: Trajanus d.o.o., Kranj. 43–55.

Komori-Glatz, M. (2018). “Cool my doubt is erased”: Constructive disagreement and creating a psychologically safe space in multicultural student teamwork. *Journal of English as a Lingua* Franca, 7, 285-306

Koole, T. (2010). Displays of Epistemic Access: Student Responses to Teacher Explanations.” Research on Language and Social Interaction 43 (2): 183–209.

Koops, C., & Lohmann, A. (2015). A quantitative approach to the grammaticalization of discourse markers: evidence from their sequencing behaviour. *International Journal of Corpus Linguistics*, 20(2), 232-259.

Kochanski, G., Grabe, E., Coleman, J., and Rosner, B. (2005). Loudness predicts prominence: fundamental frequency lends little The Journal of the Acoustical Society of America, 118, 1038–1054.

Kosmala, L., & Morgenstern, A. (2017). A preliminary study of hesitation phenomena in L1 and L2 productions: a multimodal approach. *Proceedings of DiSS 2017, 18–19 August 2017, Royal Institute of Technology, Stockholm Sweden*, 37-40.

Kosmala, L., & Morgenstern, A. (2019). Should “uh” and “um” be categorized as markers of disfluency? The use of fillers in a challenging conversational context. In L. Degand, G.

Gilquin, & A. C. Simon (Eds.), *Fluency and Disfluency across Languages and Language Varieties* (Corpora and Language in Use-Proceedings 4). Louvain-la-Neuve: Presses universitaires de Louvain.

Kousidis, S., Pfeiffer, T., and Schlangen, D. (2013). MINT: Tools and adaptors supporting acquisition, annotation and analysis of multimodal corpora. In Proceedings of Interspeech (Lyon, France, 2013), 2649–2653.

Krauss, R. M. (1998). Why do we gesture when we speak? *Current Directions in Psychological Science*, 7, 54-60.

Krauss, R. M., Chen, Y., & Gottesman, R. F. (2000). Lexical gestures and lexical access: A process model. In D. McNeill (Ed.), *Language and gesture* (pp. 261-283). Cambridge: Cambridge University Press.

Krauss, R. M., & Hadar, U. (1999). The role of speech-related arm/hand gestures in word retrieval. In R. Campbell & L. Messing (Eds.), *Gesture, speech, and sign* (pp. 93-116). Oxford: Oxford University Press.

Kress, G. (2000). Multimodality in Cope, B. & Kalantzis, M. (eds.). Multiliteracies: Literacy Learning and the Design of Social Futures. London: Routledge.

Kress, G. (2003). *Literacy in the new media age*. London: Routledge.

Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. London: Routledge.

Kress, G., & Van Leeuwen, T. (2001). *Multimodal Discourse: The Modes and Media of Contemporary Communication Discourse*. London: Arnold.

Kress, G., & Van Leeuwen, T. (2006). *Reading Images: The Grammar of Visual Design,* (2nd edition). London: Routledge

Krifka, M. (2015). Bias in commitment space semantics: Declarative questions, negated questions, and question tags. In *Proceedings of SALT* 25, 328–345.

Krivokapic, J., Tiede, M. K., Tyrone, M. E., and Goldenberg, D. (2016). Speech and manual gesture coordination in a pointing task. In *Proceedings of the 8th International Conference on Speech Prosody, Boston,* 1240–1244.

Kumaki, K. (2003). A study of English Intonation in High School Textbooks in Japan. Masters Dissertation. University of Birmingham, United Kingdom.

Kumar, V. (2012). *Body Language*. New York: Sterling Publishers.

Kumar, V., & Stracke, E. (2007). An analysis of written feedback on a PhD thesis. *Teaching in Higher Education*, 12(4), 461–70.

Kurdi, H. (2008). *The Use of Discourse Markers by Syrian Arabic Learners of English*. Unpublished Doctoral thesis. University of Manchester, UK

Ladewig, S. H. (2014). Recurrent gestures. In: C. Müller, A. Cienki, E. Fricke, S. H. Ladewig, D. McNeill & J. Bressem (eds.), *Body-Language-Communication: An International Hand- book on Multimodality in Human Interaction. (Handbooks of Linguistics and Communication Science 38.2.)* (pp. 1558- 1575), Berlin/Boston: Mouton de Gruyter.

Lakoff, G. (1971). On Generative Semantics. In D. D. Steinberg, & L. A. Jakobovits (Eds.), Semantics: An Interdisciplinary Reader in Philosophy, Linguistics and Psychology (pp. 232-296). Cambridge: Cambridge University Press.

Lakoff, R. (1973). Questionable answers and answerable questions‟ in Kachru, B. B., R. B. Lees, Y. Malkiel, A. Pietrangeli and S. Saporta (eds.). *Issues in Linguistics. Papers in Honor of Henry and Renée Kahane*. Urbana: University of Illinois Press

Lakoff, G. and M. Johnson (1980). Metaphors We Live By, Chicago, IL: University of Chicago Press

Lam, P. W. Y., (2009a). The effect of text type on the use of so as a discourse particle. Discourse Studies 11 (3), 353-372.

Lam, P. W. Y. (2009b). Discourse particles in corpus data and textbooks: The Case of Well. Applied Linguistics, 31(2), 260–281.

Landgrebe, J. (2011). Intersubjectivity: Interactional Trouble-Sourcing and ’Problem Pictures’. In: *Participatory Innovation Conference Proceedings*. Edt. J. Buur, Sø nderborg: University of Southern Denmark, 32-37.

Landgrebe, J. (2012). I think—You know” Two epistemic stance markers and their significance in an innovation process. Språk Och Interaktion, 30, 107–130.

Lansari, L. (2019). A Contrastive view of Discourse Markers: Discourse Markers of Saying in English and French, Cham: Palgrave Macmillan.

Laserna C., Seih Y., & Pennebaker J. (2014). Um who like says you know: Filler word use as a function of age, gender, and personality. *Journal of Language and Social Psychology*, 33(3), 328–338.

Laury, R., Helasvou, M. (2016). Disclaiming epistemic access with 'know' and 'remember' in Finnish. J. *Pragmat.* 106, 80--96.

Law, L. (2019). Creativity and television drama: A corpus-based multimodal analysis of pattern-reforming creativity in House M.D. Corpora, 14(2), 135-171

Lee, A. (2007). Developing effective supervisors' concepts of research supervision. *South African Journal of Higher Education* 21(4), 680–93.

Lee, J.-M. (2017). The Multifunctional Use of a Discourse Marker okay by Korean EFL Teachers. *Foreign Language Education Research,* 21, 41-65.

Lemke, J. (2008). Identity, development, and desire: Critical questions. In: Caldas-Coulthard C and Iedema R (eds) *Identity Trouble: Critical Discourse and Contested Identities*. New York: Palgrave Macmillan, pp. 17–42. Palgrave.

Lenk, U. (1998). *Marking discourse coherence: Functions of discourse markers in spoken English.* Tübingen: Gunter Narr Verla.

Leonard, T., & Cummins, F. (2010). The temporal relation between beat gestures and speech. *Language and Cognitive Processes*, 26(10), 1457–1471.

Lerner, G., & Kitzinger, C. (2019). Well-prefacing in the organization of self-initiated repair. Research on Language and Social Interaction, 52(1), 1–19.

Levine, P., & Scollon, R. (2004). Discourse & technology: Multimodal discourse analysis. Washington, DC: Georgetown University Press.

Levinson, S. C. (1983). *Pragmatics*. Cambridge: Cambridge University Press.

Levon, E. (2016). Gender, interaction and intonational variation: the discourse functions of high rising terminals in london'. *Journal of Sociolinguistics* 20:133–63

Liao, S. (2009). Variation in the use of discourse markers by Chinese teaching assistants in the US. *Journal of Pragmatics,* 41(7), 1313–1328.

Lim, F. V. (2011). *A systemic functional multimodal discourse analysis (SFMDA) approach to classroom discourse*. Unpublished PhD thesis, National University of Singapore.

Lim, J. (2016). *Discourse Marker So: A Comparison between English Language Learners and English Dominant Speakers*. Unpublished doctoral thesis, University of Toronto. Retrieved from https://tspace.library.utoronto.ca/bitstream/1807/72745/4/Lim_Jessica_201606_MA_thesis.pdf

Lim, J. (2018). So How Do English Language Learners Use "So"? *Canadian Journal of Applied Linguistics, 21 (1), 94–122.*

Lindström, J., & Karlsson, S. (2016). Tensions in the epistemic domain and claims of no-knowledge: A study of Swedish medical interaction. *Journal of Pragmatics*, 106, 129–147.

Literat, I., Conover, A., Herbert-Wasson, E., Page, K. K., Riina-Ferrie, J., Stephens, R., and Vasudevan, L. (2017). Toward multimodal inquiry: Opportunities, challenges and implications of multimodality for research and scholarship. *Higher Education Research & Development.* (37), 565-578.

Liu, B. (2017). The use of discourse markers but and so by native English speakers and Chinese speakers of English. *Pragmatics*, 27(4), 479–506.

Local, J., & Walker, G. (2004). Abrupt-joins as a resource for the production of multi-unit, multi-action turns. *Journal of Pragmatics,* 36(8), 1375-1403.

Lohmann, A., & Koops, C. (2016). Aspects of Discourse Marker sequencing. In Keizer, Evelien; Kaltenböck, Gunther & Arne Lohmann (eds.) *Outside the Clause: Form and Function of Extra-Clausal Constituents. Studies in Language Companion Series,* (417-446). Amsterdam/Philadelphia: John Benjamins Publishing.

Lotte van Poppel (2019) Anticipating Resistance to Health Advice: A Speech Act Perspective, Discourse Processes, 56:3, 256-269

Macaulay, R. (2002). You know, it depends. *Journal of Pragmatics*, 34, 749-767.

Macaulay, R. (2005). *Talk that Counts: Age, Gender and Social Class Differences in Discourse.* New York: Oxford University Press.

Machin, D. (2007). *Introduction to Multimodal Analysis.* London: Hodder Arnold.

Mackey, A., & Gass, S. M. (2005). *Second language research: Methodology and design*. Mahwah, NJ: Lawrence Erlbaum.

Mainhard, T., van der Rijst, R., van Tartwijk, J., & Wubbels, T. (2009). A model for the supervisor-doctoral student relationship. *Higher Education,* 58(3), 359– 373.

Malamud, S., & Stephenson, T. (2015). Three ways to avoid commitments: Declarative force modifiers in the conversational scoreboard. *Journal of Semantics* 32. 275–311.

Malcolm, M. (2012). Examining the Implications of Learner and Supervisor Perceptions of Undergraduate Dissertation. Research in Business and Management. *Teaching in Higher Education* 17 (5): 565–576.

Manathunga, C. (2007). Supervision as mentoring: The role of power and boundary crossing. *Studies in Continuing Education*, 29(2), 207–221.

Maricchiolo, f., Gnisci, A., & Bonaiuto, M. (2012). Coding hand gestures: A reliable taxonomy and a multi-media support. In A. Esposito, A. Esposito, A. Vinciarelli, R. Hoffmann, & V. Muller, (eds), *Cognitive Behavioural Systems*, *volume 7403 of Lecture Notes in Computer Science* (pp. 405–416). Springer Berlin Heidelberg.

Martínez, I. M. P. (2011). I might, I might go I mean it depends on money things and stuff. A preliminary analysis of general extenders in British teenagers' discourse. *Journal of Pragmatics*, *43*, 2452-2470.

Maschler, Y. (2009). Metalanguage in Interaction: Hebrew Disourse Markers. Amsterdam/Philadelphia: John Benjamins Publishing.

Maschler, Y. (2017). The emergence of Hebrew loydea/loydat ('I dunno masc/fem') from interaction: blurring the boundaries between discourse marker, pragmatic marker, and modal particle. In A. Sansò & C. Fedriani (Eds.), Pragmatic markers, discourse markers and modal particles: new perspectives (pp. 37–69). Amsterdam: John Benjamins Publishing.

Maschler, Y., & Dori-Hacohen, G. (2018). Constructing a genre: Hebrew lo yode'a / lo yoda'at '(I) don't know' on Israeli political radio phone-ins. *Text & Talk*. 38(5), 575-604.

Maschler, Y., & Estlein, R. (2008). Stance-taking in Israeli Hebrew casual conversation via be'emet (really, actually, indeed, lit. in truth). *Discourse Studies* 10(3): 283–316.

Maschler, Y., & Schiffrin, D. (2015). Discourse markers: Language, meaning, and context. In D. Tannen, H. E. Hamilton, & D. Schiffrin (Eds.), *The handbook of discourse analysis* (2nd ed., pp. 189–221). Malden, MA: John Wiley & Sons, Ltd.

Matsumoto, Y. (2018). Challenging moments as opportunities to learn: The role of nonverbal interactional resources in dealing with conflicts in English as a lingua franca classroom interactions. *Linguistics and Education*,48,35–51.

Mat Nayan, N. F., & Setter, J. (2016). Malay English intonation: The cooperative rise. English WorldWide, 37(3), 293–322.

Mattsson, J. (2009). *The subtitling of discourse particles. A corpus-based study of well, you know, I mean, and like, and their Swedish translations in ten American films*. Unpublished doctoral thesis, Gothenburg: University of Gothenburg, Sweden.

Matzen, L. (2004). Discourse markers and prosody: a case study of so. *LACUS Forum*. 30. 73-94. Sweden.

McAlpine, L., & Norton, J. (2006). Reframing out approach to doctoral programs: An integrative framework for action and research. *Higher Education Research & Development,* 25(1), 3–17.

McHugh M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia medica*, *22*(3), 276–282.

McEnery, T. and Wilson, A. (2001) *Corpus Linguistics*. Edinburgh: Edinburgh University Press.

McKee, R., Wallingford, S., (2011). So, well, whatever: discourse functions of palm-up in New Zealand Sign Language. *Sign Language and Linguistics,* 14, 213-247.

McNeill, D. (1992). *Hand and mind: What gestures reveal about thought.* Chicago: University of Chicago Press.

McNeill, D. (Ed.). (2000). Language and gesture: Window into thought and action. Cambridge: Cambridge University Press.

McNeill, D. (2005). Gesture and thought. Chicago: University of Chicago Press.

McNeill, D. (2008). Gesture of power and power of gesture. *Berlin Ritual-Conference*. Berlin: Dec. 5. 2008, E. Fischer-Lichte and C. Wulf (editors). Retrieved from https://www.researchgate.net/profile/David_Mcneill/publication/257126021_Gestures_of_Power_and_the_Power_of_Gestures/links/00b495245affd29ab7000000.pdf

McNeill, D, & Duncan, S. (2000). Growth points in thinking-for speaking. In D. McNeill, (Ed.) *Language and gesture* (pp. 141-161). Cambridge: Cambridge University Press.

Mehrabian, A. (1972). *Nonverbal communication*. Chicago: Aldine.

Milà-Garcia, A. (2018). Pragmatic annotation for a multi-layered analysis of speech acts: A methodological proposal. *Corpus Pragmatics,* 2(1), 265–287.

Mompeán-González, J., & Monroy-Casas, R. (2010). Nuclear Tones in English: The Case of Household Consumer Products TV Commercials. *ReVEL*, 8(15), 229-240.

Mondada, L. (2008). Using Video for a sequential and multimodal analysis of social interaction: Videotaping institutional telephone calls. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *9*(3). Retrieved from: http://www.qualitative-research.net/index.php/fqs/article/view/1161/2566

Mondada, L. (2014a). Pointing, talk, and the bodies: reference and joint attention as embodied interactional achievements. In: Seyfeddinipur, Mandada, Gullberg, Marianne (Eds.), *From Gesture in Conversation to Visible Action as Utterance* (pp. 95-214). Amsterdam: John Benjamins Publishing.

Mondada, L. (2014b). The local constitution of multimodal resources for social interaction. *Journal of Pragmatics*, 65, 137–156.

Mondada, L. (2016a). Multimodal resources and the organization of social interaction. In A. Rocci & L.d. Saussure (Eds.), V*erbal communication* (pp. 329-350). Berlin: De Gruyter Mouton.

Mondada, L. (2016b). Challenges of multimodality: language and the body in social interaction. *Journal of Sociolinguist*. 20(3), 336-366.

Mondada, L. (2018). Multiple temporalities of language and body in interaction: challenges for transcribing multimodality. *Research on Language and Social Interaction*, 51(1), 85–106.

Mondada, L. (2019). Contemporary issues in conversation analysis: Embodiment and materiality, multimodality and multisensorality in social interaction. *Journal of Pragmatics,* 145, 47-62.

Morell, T. (2018). Multimodal competence and effective interactive lecturing. *System*. 77, 70–79.

Mortensen, K. (2016). The Body as a Resource for Other-Initiation of Repair: Cupping the Hand Behind the Ear, Research on Language and Social Interaction, 49:1, 34-57,

Morton, J., Storch, N., & Thompson, C. (2014). Feedback on writing in the supervision of postgraduate students: Insights from the work of Vygotsky and Bakhtin. Journal of Academic Language and Learning, 8(1), A24-A36

Mulder, J. & Thompson, S. (2008). The grammaticization of but as a final particle in English conversation. In: Laury, R. (Ed.), Crosslinguistic Studies of Clause Combining: The Multifunctionality of Conjunctions (pp. 179-204). Amsterdam: John Benjamins Publishing.

Müller, S. (2004). Well you know that type of person: functions of well in the speech of American and German students. *Journal of Pragmatics*, 36 1157-1182.

Müller, S. (2005). *Discourse Markers in Native and Non-native English Discourse*. Amsterdam/Philadelphia: John Benjamins.

Müller, C. (2017). How recurrent gestures mean: conventionalized contexts-of-use and embodied motivation. *Gesture*, 16, 278–306.

Müller, C. (2018). Gesture and sign: cataclysmic break or dynamic relations. *Frontiers in Psychology*, 9:1651. Retrieved from https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01651/full

Müller, C., Bressem, J., & Ladewig, S. H. (2013). Towards a grammar of gestures: A form-based view. In C. Müller, A. Cienki, E. Fricke, S. H. Ladewig, D. McNeill, & S. Teßendorf (Eds.), *Body-Language-Communication: An International Handbook on Multimodality in Human Interaction* (Volume 1) (pp. 707–733). Berlin: De Gruyter Mouton.

Müller, C., Cienki, A., Fricke, E., Ladewig, SH., McNeill, D., & Bressem, J. (eds). (2013). *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction*. (Handb. Linguist. Commun. Sci. 38.2). Berlin/Boston: Mouton de Gruyter

Murphy, D., & Candlin, C. (1979). Engineering lecture discourse and listening comprehension. Practical Papers in English Language Educatkm, 2, l-79

Navarro, J. (2018). The dictionary of body language. New York, NY: HarperCollins Publishers.

Neary-Sundquist, C. (2013). Task type effects on pragmatic marker use by learners at varying proficiency levels. *L2 Journal*, 5(2). 1–21.

Neary-Sundquist, C. (2014). The use of pragmatic markers across proficiency levels in second language speech. *Studies in Second Language Learning and Teaching,* 4(4). 637–663.

Nesi, H., & Basturkmen, H. (2006). Lexical bundles and discourse signalling in academic lectures. *International Journal of Corpus Linguistics, 11*, 283–304.

Nevile, M. (2015). The embodied turn in research on language and social interaction. *Research on Language and Social Interaction*, 48(2), 121–151.

Nicoladis, E., Pika, S., & Marentette, P. (2010). Are number gestures easier than number words for pre-schoolers? *Cognitive Development*, 25(3), 247–261

Neuman, W.L. (2012) *Basics of Social Research: Qualitative and Quantitative Approaches*, 3rd ed. Harlow: Pearson Education.

Nguyen, T. (2016). *Pedagogical practices in PhD supervision meetings from a conversation analytic perspective.* Unpublished doctoral thesis, University of Queensland, Australia.

Nguyen, T., & Janssens, M. (2018). Knowledge, Emotion, and Power in Social Partnership: A turn to partners' context. *Organization Studies*, 1-23.

Norrick, N. (2001). Discourse markers in oral narrative. *Journal of Pragmatics*, 33, 849–878.

Norrick, N. (2011). Interjections. In G. Andersen & K. Aijmer (Eds.), *Handbooks of pragmatics* (243–292). Berlin: De Gruyter.

Norris, S. (2004a). *Analysing multimodal interaction: A methodical framework.* London/ New York: Routledge.

Norris, S. (2014). Multimodal (inter)action analysis', in P. Albers, T. Holbrook and A. Seely Flint (Eds.) New Methods of Literacy Research (pp. 70–84). New York: Routledge.

Oben, B. & Brône, G. (2015). What you see is what you do. On the relationship between gaze and gesture in multimodal alignment. *Language and Cognition,* 7, 546–562. Retrieved from https://www.cambridge.org/core/journals/language-and-cognition/article/what-you-see-is-what-you-do-on-the-relationship-between-gaze-and-gesture-in-multimodal-alignment/4111390A95CD6FEC62A641DB94DF32FE

O'Halloran, K.L. (ed.) (2004) Multimodal Discourse Analysis. London: Continuum

O'Halloran, K. L. (2008). Systemic functional-multimodal discourse analysis (SFMDA): Constructing ideational meaning using language and visual imagery. *Visual Communication*, 7(4), 443-475.

O'Halloran, K. L. & Smith, B. A. (Eds.). (2011). Multimodal studies: Exploring issues and domains. New York & London: Routledge.

Oittinen, T. (2018). Multimodal accomplishment of alignment and affiliation in the local space of distant meetings. *Culture and Organization*, 24, 31-53.

O'Keeffe, A. & Adolphs, S. (2008). Using a corpus to look at variational pragmatics: response tokens in British and Irish discourse', in K. Schneider and A. Barron (eds), *Variational Pragmatics: A Focus on Regional Varieties in Pluricentric Languages*, (pp. 69-98), Amsterdam: John Benjamins Publishing.

O'Keeffe, A., Clancy, B., & Adolphs, S., (2011). *Introducing Pragmatics in Use*. London: Routledge.

O'Keeffe, A. and Walsh, S. (2012). 'Applying corpus linguistics and conversation analysis in the investigation of small group teaching in higher education. *Corpus Linguistics and Linguistic Theory*, 8 (1), 159–181.

Östman, J. O. (1983). *You Know: A Discourse Functional Approach*. Amsterdam: John Benjamins.

Othman, Z. (2010). The use of okay, right and yeah in academic lectures by native speaker lecturers: Their anticipated and real meanings. *Discourse Studies*, 12(5), 665–681.

O'Toole, M. (1994). *The Language of Displayed Art*. London: Leicester University Press.

Ozer, H., & Okan Z. (2018). Discourse markers in EFL classrooms: a corpus-driven research. Journal of Language and Linguistic Studies 14(1), 50-66.

Packard, G., Moore, S. G., & McFerran, B. (2018). "(I'm) happy to help (You)": The impact of personal pronoun use in customer-firm interactions. *Journal of Marketing Research* 541–555

Pander Maat, H., & Degand, L. (2001). Scaling causal relations and connectives in terms of Speaker Involvement, *Cognitive Linguistics*, 12 (3), 211-245.

Pardo, J. (2006). On phonetic convergence during conversational interaction. *Journal of the Acoustical Society* of America, 119, 2382–2393.

Parry R. (2010). Video-based conversation analysis. In. I. Bourgeault, R. DeVries, & R. Dingwall (Eds.) *Sage handbook of qualitative methods in health research* (pp. 373–96). London: Sage.

Parvaresh, V. and T. Tayebi, (2014). Vaguely speaking in Persian. *Discourse Processes* 51: 565-600.

Pasaribu, T. (2017). Gender differences and the use of meta-discourse markers in writing essays. *International Journal of Humanity Studies*. 1. 93-102.

Pasquandrea, Sergio, (2012). Co-constructing dyadic sequences in healthcare interpreting: a multimodal account. *New Voices in Translation Studies* 8, 132 157.

Pawelcyk, J. and Erksine, R. (2008). Expressing the unexpressed: Self-disclosure as interactional achievement in the psychotherapy session. *Communication and Medicine* 5 (1): 35–47.

Pease, A., & Pease, B. (2004). *Definitive book of body language*. Australia: Pease International.

Peluso A.M., Bonezzi A., De Angelis M., Rucker D.D. (2016). Compensatory Advice Giving: How Experiencing a Need for Control Makes You Advise More. In: L. Petruzzellis, & R. Winer (eds) *Rediscovering the Essentiality of Marketing. Developments in Marketing Science: Proceedings of the Academy of Marketing Science*. Springer: Cham.

Pennebaker, J. W. (2011). T*he secret life of pronouns: What our words say about us*. New York, NY: Bloomsbury Press.

Pérez-González, L. (2019). Multimodality. In M. Baker, & G. Saldanha (Eds.), *Routledge Encyclopaedia of Translation Studies* (Third Edition ed., pp. 346-351). London & New York: Routledge.

Petraki, E., & Clark, S. (2016). Affiliating Through Agreements: The Context of Antenatal Consultations, *Australian Journal of Linguistics*, 36:2, 273-289.

Pfänder & Couper-Kuhlen (2019). Turn-sharing revisited: An exploration of simultaneous speech in interactions between couples. *Journal of Pragmatics* 147 22-48

Phillips, E., & Pugh, D. (2000). How to get a PhD: A handbook for students and their supervisors (3rd ed.). Buckingham, UK: Open University Press.

Pichler, H. and Hesson, A. (2016). 'Discourse-pragmatic variation across situations, varieties, ages: I DON'T KNOW in sociolinguistic and medical interviews'. *Language and Communication* 49: 1–18.

Pickering, M. J., & Garrod, S. C. (2006). Alignment as the basis for successful communication. *Research on Language and Computation*, 4, 203–228.

Pink, S. (2011). Multimodality, multisensoriality and ethnographic knowing: Social semiotics and the phenomenology of perception. *Qualitative Research*, 11(3), 261-276.

Placencia, M. E. (2004). Rapport-building activities in corner shop interactions. *Journal of Sociolinguistics*, 8: 215-245.

Plug, L. (2014). On (or not on) the upgrading-downgrading continuum: The case of prosodic marking in self-repair. In D. Barth-Weingarten, & B.S. Reed (eds.). *Prosody and phonetics in interaction* (pp. 70-86). Mannheim, Germany: Verlag für Gesprächsforschung.

Polat, B. (2011). Investigating acquisition of discourse markers through a developmental learner corpus. *Journal of Pragmatics*, 43, 3745-3756

Polit, D. F., & Beck, C. T. (2010). Generalization in quantitative and qualitative research: Myths and strategies. *International Journal of Nursing Studies*, 47(11), 1451-1458.

Pons Bordería, S. (2008). Do discourse markers exist? On the treatment of discourse markers in Relevance Theory. *Journal of Pragmatics,* 40, 1411–1434.

Pons Bordería, S. (2018). The combination of discourse markers in spontaneous conversations: Keys to undo a gordian knot. *Revue Romane,* 53(1), 121-158.

Poos, D., and Simpson, R. C. (2002). Cross-Disciplinary Comparisons of Hedging: Some Findings from the Michigan Corpus of Academic Spoken English. In R. Reppen, S. Fitzmaurice, & D. Biber (eds.), *Using Corpora to Explore Linguistic Variation*. (pp. 3–23). Amsterdam: John Benjamins.

Popescu-Bellis, A, Zufferey, S. (2011). Automatic identification of discourse markers in dialogues: An indepth study of like and well. Computer Speech & Language 25 (3), 499-518.

Pouw, W., & Dixon, J. A. (2019). Entrainment and modulation of gesture–speech synchrony under delayed auditory feedback. *Cognitive Science*, 43, e12721. Retrieved from https://doi.org/10.1111/cogs.12721

Prieto, P., Borras-Comes, J., (2018). Question intonation contours as dynamic epistemic operators. *Natural Language and Linguistic Theory*, 36 (2), 563-586.

Prior, M. (2018). Accomplishing "rapport" in qualitative research interviews: Empathic moments in interaction. *Applied Linguistics Review*, 9, 487–511.

Prodromou, L. (1997). Global English and the Octopus'. IATEFL Newsletter 137:18–22.

Pulcini, V. & Furiassi, C. (2004). Spoken interaction and discourse markers in a corpus of learner English. In Alan Partington, John Morley & Louann Haarman (eds.), Corpora and discourse, 107-123. Bern: Peter Lang.

Quimbo, F. C., Kawahara, T., & Doshita, S. (1998). Prosodic analysis of fillers and self-repair in Japanese speech, In *Proc. ICSLP,* 3313–3316

Quirk, R., Greenbaum, S., Leech, G., & Svartvik, J. (1985). *A comprehensive grammar of the English language*. New York: Longman.

Ranger, G. (2018). *Discourse markers: An enunciative approach*. Cham: Palgrave Macmillan.

Rasmussen, G., Hazel, S., & Mortensen, K. (Eds.). (2014). Special issue: A body of resources—CA studies of social conduct. *Journal of Pragmatics*, 65.

Redeker, G. (1990). Ideational and Pragmatic Markers of Discourse Structure. *Journal of Pragmatics*, 14 367-381.

Redeker, G. (1991). Linguistic markers of discourse structure. *Linguistics*, 29 1139-1172.

Reidy, J., & Green, P. (2005). Collaborative knowledge management and the art of coaching: reflections on the diverse roles of the successful supervisor. In . P. Green. (Ed.) *Supervising postgraduate research: contexts and processes, theories and practices*, Melbourne: RMIT University Press.

Reese, B., & Asher, N. (2007), Prosody and the interpretation of tag questions. In E. Puig-Waldmüller (ed.), *Proceedings of Sinn und Bedeutung* 11, 448–462. Retrieved from http://idiom.ucsd.edu/~ivano/SemBabble_old/10_2/Material/reese_asher%20s&b%202008.pdf

Rieber, S. (1997). Conventional implicatures as tacit performatives. *Linguistics and Philosophy,* 20, 51–72.

Reichel, U., Beňuš, Š., & Mády, K. (2018). Entrainment profiles: Comparison by gender, role, and feature set, *Speech Communication*, 100, 46–57.

Reidy, J., and Green, P. (2005). Collaborative knowledge management and the art of coaching:reflections on the diverse roles of the successful supervisor. In *Supervising postgraduate research: contexts and processes, theories and practices*, ed. P. Green. Melbourne: RMIT University Press.

Rezaee, M., Aghagolzadeh, F., & Birjandi, P. (2015). The effect of lecturers' gender on the use of discourse markers. International Journal of Research Studies in Language Learning, 4(2), 69-87. Retrieved from http://consortiacademia.org/wp-content/uploads/IJRSLL/IJRSLL_v4i2/900-3408-1-PB.pdf

Riou, M., (2017). The Prosody of Topic Transition in Interaction: Pitch Register Variations. *Language and Speech*, 60, 4: 658-678.

Rivas, J., Brown, E. (2010). Variable development of intersubjectivity in Spanish. In: Sánchez, A., Almela, M. (Eds.), A Mosaic of Corpus Linguistics. Selected Approaches. Peter Lang, Frankfurt am Main, pp. 61--78.

Romero-Trillo, J. (2002). The sympathetic circularity function in English: An intonation corpus-driven analysis. *Estudios Ingleses e la Universidad Complutense* 10, 87–112.

Romero-Trillo, J. (Ed.) (2012). Pragmatics and prosody in English language teaching. Dordrecht: Springer.

Romero-Trillo, J. (2014). Pragmatic punting and prosody: Evidence from corpora. In M.A. Gómez, F.J. Ruiz de Mendoza, F. Gonzálvez, & A. Downing (Eds.), *The functional perspective on language and discourse: Applications and implications*, (pp. 209-222). Amsterdam: John Benjamins Publishing.

Romero-Trillo, J. (Ed.) (2015a). *The Yearbook of Corpus Linguistics and Pragmatics: current approaches to discourse and translation studies*. Dordrecht: Springer.

Romero-Trillo, J. (2015b). Understanding vagueness: A prosodic analysis of endocentric and exocentric general extenders in English conversation. Journal of Pragmatics, 86, 54-62.

Romero-Trillo, J. (2015c). It is a truth universally acknowledged' ..., you know? The role of adaptive management and prosody to start a turn in conversation. Pragmat. Soc. 6 (1), 117—145

Romero-Trillo, J. (2019). Prosodic pragmatics and feedback in intercultural communication. *Journal of Pragmatics, 151, 91-102*

Romero-Trillo, J., & Maguire, L. (2011). Adaptive Context: The Fourth Element of Meaning. *International Review of Pragmatics*, 3, 228–241.

Rossano, F. (2012). *Gaze behaviour in face-to-face interaction*. Nijmegen, Germany: Radboud University.

Rossano, F. (2013). Gaze in conversation, in Sidnell j., and Stivers, T.,(Eds) *The Handbook of Conversation Analysis*. Chichester: Wiley-Blackwell, 308–329.

Rossi, G. (2018) Composite Social Actions: The case of factual declaratives in everyday interaction, *Research on Language and Social Interaction*, 51(4), 379-397.

Roth, W. M. (2001). Gestures: Their role in learning and teaching. *Review of Educational Research*, 71(3), 365–392.

Rowley-Jolivet, E. (2012). Oralising text slides in scientific conference presentations: a multimodal corpus analysis. In A. Boulton, S. Carter-Thomas, & E. Rowley-Jolivet (Eds.), *Corpus-Informed research and learning in ESP* (pp. 137-165). Amsterdam: John Benjamins.

Royce, Terry. (2005). The Negotiator and the Bomber: Analyzing the Critical Role of Active Listening in Crisis Negotiations. *Negotiation Journal* 21(1):5–27.

Rühlemnann, C. (2010). What can a corpus tell us about pragmatics?. In A. O'Keeffe & M. McCarthy (eds.), *The Routledge Handbook of Corpus Linguistics (pp.)*. New York: Routledge.

Rühlemann, C., (2019). How long does it take to say 'well'. Evidence from the audio BNC*. Corpus Pragmat*. 49-66

Rühlemann, C., & Hilpert, M. (2017). Colloquialization in journalistic writing: Investigating inserts in TIME magazine with a focus on well'. *Journal of Historical Pragmatics,* 18(1), 102–135.

Sacks, H., (1984). On doing 'being ordinary'". In: J.M. Atkinson and J.Heritage (eds.), *Structures of Social Action. Studies in Conversation Analysis*, Cambridge: Cambridge University Press. 413-429.

Sacks, H., Schegloff, E.A. and Jefferson, G. (1974). A simplest systematics for the organization of turn-taking for conversation. Language, (50), 696-735.

Sandal, K. (2016). *And like, they said…well, you know": A corpus-based study of the discourse markers 'like', 'well', and 'you know' in spoken Norwegian learner language and British English".* Unpublished Master dissertation, University of Oslo.

Sanna Vehviläinen (2009). Problems in the Research Problem: Critical Feedback and Resistance in Academic Supervision, *Scandinavian Journal of Educational Research*, 53:2, 185-201,

Schegloff, E. A. (1996). Turn organization: one intersection of grammar and interaction. In: Ochs, E., Schegloff, E.A., Thompson, S.A. (Eds.) *Interaction and Grammar* (pp. 52—133). Cambridge University Press, Cambridge.

Schegloff, E. A., & Lerner, G. H. (2009). Beginning to respond: Well-prefaced responses to wh-questions*. Research on Language and Social Interaction*, 42(2), 91–115.

Scheibman, Joanne, 2000. I dunno. . . a usage-based account of the phonological reduction of don't in American English conversation. *J. Pragmat.* 32 (1), 105-124.

Schiffrin, D. (1987). *Discourse Markers*. Cambridge/New York: Cambridge University Press.

Schiffrin, D. (2014). Discourse. In R. W. Fasold & J. Connor-Linton (Eds.), *An introduction to language and linguistics* (pp. 183–216). New York, NY: Cambridge University Press.

Schleef, Erik, (2008). The 'lecturer's ok' revisited: changing discourse conventions and the influence of academic division. *Am. Speech* 83, 62–84.

Schourup, L. (1985). *Common discourse particles in English conversation*. New York: Garland.

Schourup, L. (1999). Discourse markers: Tutorial overview. *Lingua*, 107, 227-265.

Schourup, L. (2001). Rethinking well. *Journal of Pragmatics*, 33, 1025-1060.

Schourup, L. (2011). The discourse marker now: A relevance-theoretic approach. *Journal of Pragmatics*, 43, 2110-2129.

Schmidt, T. and K. Wörner (2009). 'EXMARaLDA – creating, analysing and sharing spoken language corpora for pragmatic research.' Pragmatics. *Quarterly Publication of the International Pragmatics Association* (IPrA) 19(4): 565-582.

Schmidt T., and Schutte. W. (2010). FOLKER: An Annotation Tool for Efficient Transcription of Natural, Multi-party Interaction. In N. Calzolari, K. Choukri, B. Maegaard, J. Mariani, J. Odijk, S. Piperidis, M. Rosner, and D. Tapias, (eds), *Proceedings of the Seventh International Conference on Language Resources and Evaluation* (LREC'10), 2091 –2096, Valletta, Malta.

Schober, M. F., F. G. Conrad, W. Dijkstra & Y. P. Ongena. (2012). Disfluencies and Gaze Aversion in Unreliable Responses to Survey Questions. *Journal of Official Statistics,* 28(4): 555-582.

Schubert, C. (2019). OK, well, first of all, let me say: Discursive uses of response initiators in US presidential primary debates. *Discourse Studies*, 21(4), 438-457.

Serafini, F. (2011). Expanding perspectives for comprehending visual images in multimodal texts. *Journal of Adolescent & Adult Literacy*, 54(5), 342–350.

Sert, O., & Jacknick, C. (2015). Student smiles and the negotiation of epistemics in L2 classrooms. *Journal of Pragmatics* 77: 97–112. Retrieved from http://dx.doi.org/10.1016/j.pragma.2015.01.001

Seyyedrezaie, Z. S. & Vahedi, V. S. (2017). Projecting gender identity through meta-discourse marking: Investigating writers' stance taking in written discourse. *Indonesian Journal of Applied Linguistics*, 6(2), 301-310.

Sinclair, J. (1991). *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.

Sinclair, J. and M. Coulthard. (1975). *Towards an Analysis of Discourse. The English Used by Teachers and Pupils.* Oxford: Oxford University Press.

Sidnell, J. (2010) *Conversation Analysis: an introduction*. Oxford: Wiley-Blackwell.

Sloetjes, H., & Wittenburg, P. (2008). Annotation by category: Elan and iso dcr. In *LREC. European Language Resources Association.* Retrieved from https://pure.mpg.de/rest/items/item_60774_3/component/file_60775/content

So, W.C., Kita, S., Goldin-Meadow, S., (2009). Using the hands to identify who does what to whom: gesture and speech go hand-in-hand. *Cognitive Science*, 33, 115–125.

Soliz, J. & Giles, H. (2014). Relational and Identity Processes in Communication: A Contextual and Meta-Analytical Review of Communication Accommodation Theory, *Annals of the International Communication Association*, 38:1, 107-144,

Song, L. (2010). The Role of Context in Discourse Analysis. *Journal of Language Teaching and Research,* 1(6), 876-879. Retrieved from http://www.academypublication.com/issues/past/jltr/vol01/06/19.pdf

Smith,C. (2002). *Modes of Discourse.* Cambridge University Press: Cambridge

Smith, K. (2008). Who do you think you're talking to? The discourse of learning and teaching strategies. *Higher Education*, 56(4), 395–406.

Sorjonen, M.-L., & Raevaara, L. (2014). On the grammatical form of requests at the convenience store. In P. Drew & E. Couper-Kuhlen (Eds.), *Requesting in social interaction* (pp. 243–268). Amsterdam, The Netherlands/Philadelphia, PA: John Benjamins.

Steensig, J. (2013). Conversation analysis and affiliation and alignment. In C. A. Chapelle (ed.), *The Encyclopaedia of Applied Linguistics* (pp. 944-948). Malden: Wiley Blackwell.

Stevanovic, M., & Perakyla, A. (2014). Three orders in the organization of human action: On the interface between knowledge, power, and emotion in interaction and social relations. *Language in Society*, 43, 185-207.

Stickle, T., (2015). *Epistemic stance markers and the function of I don't know in the talk of persons with dementia and children with autism*, unpublished master dissertation, University of Wisconsin-Madison). ProQuest, Ann Arbor

Stivers, T. (2008). Stance, alignment, and affiliation during storytelling: When nodding is a token of affiliation. *Research on Language and Social Interaction*, 41(1), 31-57.

Stivers, T., Mondada, L., & Steensig, J. (2011). Knowledge, morality and affiliation in social interaction. In: T. Stivers, L., Mondada, J., Steensig (Eds.), *The Morality of Knowledge in Conversation* (pp. 3-26). Cambridge: Cambridge University Press.

Stivers, T., & Rossano, F. (2010). Mobilizing response. Research on Language and Social Interaction, 43, 3–31.

Stivers, T. & Sidnell, J. (2005). Introduction: Multimodal interaction. *Semiotica*, 156 (1/4), 1-20.

Stolt, M. (2008). The Many Faces of Overlap: Non-Competitive Overlap in a Conversation between Finnish and British Speakers of English. Unpublished doctoral thesis, University of Jyväskylä, Finland.

Stone, D. (2017). *An investigation into multimodal identity construction in the EFL classroom: A social and cultural viewpoint*. Unpublished doctoral thesis, the University of Exeter, UK.

Streeck, J., Goodwin, C., & LeBaron, C. (2011). Embodied interaction in the material world: an introduction. In: J. Streeck, C. Goodwin, & C. LeBaron (Eds.), *Embodied Interaction: Language and Body in the Material World* (pp. 1-26). Cambridge: Cambridge University Press.

Stubbe, M., Holmes, J., (1995). You know, eh and other 'exasperating expressions': an analysis of social and stylistic variation in the use of pragmatic devices in a sample of New Zealand English. Lang. Commun. 15 (1), 63e88.

Suarez, E. (2016). Negotiating Students Epistemic Agency and Epistemic Authority in Physics Discussions, *paper presented at NARST Annual Conference.* Retrieved from *https://www.researchgate.net/publication/301649131_Negotiating_Students_Epistemic_Agency_and_Epistemic_Authority_in_Physics_Discussions*

Sutherland, S. (2016). *A Beginner's Guide to Discourse Analysis*. London: Palgrave Macmillan

Svartvik, J. (1980). Well in conversation. In: S. Greenbaum et al. (eds.). *Studies in English linguistics for Randolph Quirk*. London: Longman.167-177.

Svennevig, J. (2003). Echo Answers in Native/Non-Native Interaction', *Pragmatics*,13(2), 285–310.

Szczepek Reed, B. (2006). *Prosodic orientation in English conversation.* New York: Palgrave Macmillan.

Szczepek Reed, B. (2011). *Analysing conversation: An introduction to prosody*. Basingstoke, UK; New York, NY: Palgrave Macmillan.

Szczepek Reed, B. (2012). Beyond the particular: Prosody and the coordination of actions. *Language and Speech*, 55(1), 12–33.

Szczepek Reed. (2017). Creating space for Learner Autonomy: An Interactional Perspective." *Classroom Discourse* 8 (2): 175–190.

Szekrényes, I. (2014). Annotation and interpretation of prosodic data in the HuComTech corpus for multimodal user interfaces. *Journal on Multimodal User Interfaces*. Berlin & Heidelberg: Springer.

Taboada, M. (2006). Discourse markers as signals (or not) of rhetorical relations. *Journal of Pragmatics,* 38(4), 567-592.

Tai-Seale, M., Stults, C., Zhang, W., & Shumway M. (2012). Expressing uncertainty in clinical interactions between physicians and older patients: what matters? *Patient Education and Counseling*, 86, 322–328.

Takeuchi, M. (1997). Conceptual and procedural encoding: cause-consequence conjunctive particles in Japanese. *UCL Working Papers in Linguistics* 9. 1–24.

Tan, S., O'Halloran, K. L., & Wignell, P. (2016). Multimodal research: Addressing the complexity of multimodal environments and the challenges for CALL. *ReCALL*, 28(03), 253-273.

Tanaka, H. (2004). Prosody for marking transition-relevance places in Japanese conversation: The case of turns unmarked by utterance-final objects. In E. Couper-Kuhlen &. C. E. Ford (Eds.), *Sound patterns in interaction* (pp. 63–97). Amsterdam: John Benjamins

Tanaka, H. (2013). The Japanese response token Hee for registering theachievement of epistemic coherence*. Journal of Pragmatics,* 55, 51-67.

Tao, H. (2003). Turn initiators in spoken English: A corpus–based approach to interaction and grammar. In C. Meyer & P. Leistyna (Eds.), *Corpus analysis: Language structure and language use* (pp. 187–207). Amsterdam: Rodopi.

Tchizmarova, I.K. (2005). Hedging Functions of the Bulgarian Discourse Marker Xajde', *Journal of Pragmatics*, 37(8), 1143–63.

Tian, W., & Singhasiri, W. (2016). Learning opportunities in PhD supervisory talks: A social constructionist perspective. *Issues in Educational Research*, 26(4), 653-672.

Trester, A. (2009). Discourse marker *oh* as a means for realizing the identity potential of constructed dialogue in interaction. *Journal of Sociolinguistics* 13: 147–168.

Traugott, E. C. (1995). The Role of the Development of Discourse Markers in a Theory of Grammaticalization. *Paper presented at the 12thInternational Conference on Historical Linguistics.* Retrieved from http://web.stanford.edu/~traugott/papers/discourse.pdf

Traugott, E. C. (2016). On the rise of types of clause-final pragmatic markers in English. *Journal of Historical Pragmatics*, 17(1), 26–54.

Tsuchiya, K. (2010). A culture-sensitive taxonomy of response tokens: moving from listenership to speakership. Unpublished doctoral thesis, University of Nottingham, UK.

Tuncer, S. (2015). Walking away: An embodied resource to close informal encounters in offices. *Journal of Pragmatics*, 76, 101–116

Taylor, S. and Beasley, N. (2005). *A Handbook for Doctoral Supervisors*. Oxford: Routledge.

Thomas, G. (2011). A typology for the case study in social science following a review of definition, discourse, and structure. *Qualitative Inquiry*, 17(6), 511-521.

Tkačuková, T. (2015). A Corpus-Assisted Study of the Discourse Marker well as an Indicator of Judges' Institutional Roles in Court Cases with Litigants in Person. *Corpora: Corpus-Based Language Learning, Language Processing and Linguistics* 10 (2): 145–170.

Tognini-Bonelli, E. (2010). Theoretical overview of the evolution of corpus linguistics. In. A. O'Keeffe & M. McCarthy (Eds.), *The Routledge Handbook of Corpus Linguistics* (pp. 14-27). London/New York: Routledge.

Truong, K. (2013). Classification of cooperative and competitive overlaps in speech using cues from the context, overlapper, and overlappee, *INTERSPEECH*, 1404–1408.

Traugott, E. (1995). Subjectification in grammaticalisation, In Dieter Stein & Susan Wright (eds.) *Subjectivity and subjectivisation in language*, 31-54. Cambridge: Cambridge University Press.

Tsuchiya, K. (2013). *Listenership behaviours in intercultural encounters*. Amsterdam: John Benjamins Publishing Company.

Tsui, Amy B. M. (1991). The pragmatic functions of 'I don't know'. *TEXT* 11 (4), 607-622.

Uchino, B. N., Bowen, K., Carlisle, M., and Birmingham, W. (2012). Psychological pathways linking social support to health outcomes: a visit with the "ghosts" of research past, present, and future. *Soc. Sci. Med*. 74, 949–957

Urgelles-Coll M. (2010) The syntax and semantics of discourse markers. *Continuum Studies in Theoretical Linguistic*s. A&C Black, London, UK,

Van de Pol, J. (2012). *Scaffolding in teacher-student interaction: Exploring, measuring, promoting and evaluating scaffolding*. Unpublished doctoral thesis. University of Amsterdam. Retrieved from http://dare.uva.nl/record/426432

Van Dijk, T. (2007). Comments on Context and Conversation, in N. Fairclough, G. Cortese and P. Ardizzone (eds.), *Discourse and Contemporary Social Change* (pp. 218-316). Bern: Peter Lang.

Van Leeuwen, T. (2005). *Introducing social semiotics*. London: Routledge.

Van Vugt, M., & Grabo, A. E. (2015). The many faces of leadership: an evolutionary-psychology approach. Current Directions in Psychological Science, 24(6), 484-489.

Vehviläinen, S. (2009a). Problems in the research problem: Critical feedback and resistance in academic supervision. *Scandinavian Journal of Educational Research* 53(2). 185–201.

Vehviläinen, S. (2009b). Student-initiated advice in academic supervision. *Research on Language and Social Interaction* 42(2). 163–190

Verdonik, D., Žgank, A., & Peterlin, A. P. (2008). The impact of context on discourse marker use in two conversational genres. *Discourse Studies*, 10(6), 759–775.

Verdonik, D. (2015). Internal variety in the use of Slovene general extenders in different spoken discourse settings. *International Journal of Corpus Linguistics*, 20(4), 445–468.

Vessey, R. (2013). Challenges in cross-linguistic corpus-assisted discourse studies. *Corpora*, 8(1), 1-26.

Vickers, C., & Goble, R. (2011). Well, now, Okey dokey: English discourse markers in Spanish-Language medical consultations. *The Canadian Modern Language Review,* 67, 536-567.

Vickov, G., & Jakupčević, E. (2017). Discourse markers in non-native EFL teacher talk. *Studies in Second Language Learning and Teaching*, 7(4), 649–671.

Vilkinas, T. (2005). The supervisor's role as manager of the PhD journey. In P. Green (Ed.), Supervising postgraduate research: Contexts and processes, theories and practices (pp.163-177). Melbourne: RMIT University Press

Vincze, L., Poggi, I. (2017). I am really certain of this! Towards a multimodal repertoire of signals communicating a high degree of certainty. In P. Paggio, C. Navarretta (Eds.) *Proceedings of the 4th European and 7th Nordic Symposium on Multimodal Communication (MMSYM 2016),* Copenhagen, 29-30 September 2016.

Voilmy, D., & Wiklund, M. (2013). Syntactic and Prosodic Forms of First Names in Institutional Interaction Involving Multiple Participants. *Journal of linguistics, psycholinguistics and computational linguistics, 13, 1-32.*

Vukovic, M. (2014). Strong epistemic modality in parliamentary discourse. *Open Linguistics*. 1, pp. 37–52.

Vuletic, T., Duffy, A., Hay, L., McTeague, C., Campbell, G., & Grealy, M. (2019). Systematic literature review of hand gestures used in human computer interaction interfaces. *International Journal of Human-Computer Studies*, 129, 74–94.

Wagner, J. (2020). Conversation analysis: Transcriptions and data. In C. A. Chapelle (Ed.). *Concise Encyclopaedia of Applied Linguistics* (pp. 296-303). Malden: Wiley Blackwell.

Wagner, P., Malisz, Z., Kopp, S (2014). Gesture and speech in interaction: An overview. *Speech Communication*, 57, 209–232.

Walsh, S., Morton, T., & O'Keeffe, A. (2011). Analysing university spoken interaction: A CL/CA approach. *International Journal of Corpus Linguistics*,16(3), 325-345.

Walsh, S., & O'Keeffe, A. (2010). Investigating higher education seminar talk. N*ovitasROYAL (Research on Youth and Language)*. 4(2), 141-158. Retrieved from http://www.novitasroyal.org/Vol_4_2/walsh_okeeffe.pdf

Walton, G. M., Cohen, G. L., Cwir, D., & Spencer, S. J. (2012). Mere belonging: The power of social connections. *Journal of Personality and Social Psychology*, 102, 513–532.

Wang, L., & Chu, M. (2013). The role of beat gesture and pitch accent in semantic processing: An ERP study. *Neuropsychologia*, 51, 2847–2855.

Wang, T., & Li Y. (2008). Understanding international postgraduate research students' challenges and pedagogical needs in thesis writing. *International Journal of Pedagogies and Learning* 4(3), 88–96.

Wang, W. (2017). *Prosody and functions of discourse markers in Mandarin Chinese conversation: The cases of ranhou, wo juede, and meiyou.* Unpublished Doctoral dissertation, University of California, Los Angeles.

Wang, Y.-F., Tsai, P.-H., and Yang, Y.-T., (2009). Objectivity, subjectivity and intersubjectivity: Evidence from qishi (actually) and shishishang (in fact) in spoken Chinese. *Journal of Pragmatics*, 42(3), 705-727.

Wasson C (2016). Integrating conversation analysis and issue framing to illuminate collaborative decision-making activities. *Discourse & Communication* 10(4): 378–411.

Weatherall, Ann. 2011. I don't know as a Prepositioned Epistemic Hedge. *Research on Language and Social Interaction* 44. 317–337.

Wei, Ming, (2011). Investigating the oral proficiency of English learners in China: a comparative study of the use of pragmatic markers. *Journal of Pragmatics,* 43 (14), 3455-3472.

Wells, B., & Peppè, S. (1996). Ending up in Ulster: Prosody and turn-taking in English dialects. In E. Couper-Kuhlen & M. Selting (Eds.), *Prosody in conversation: Interactional studies* (101–130). Cambridge: Cambridge University Press.

Wigham, C. (2017). A multimodal analysis of lexical explanation sequences in web-conferencing supported language teaching, *Language Learning in Higher Education*, 7(1), pp. 81-108.

Wooffitt, R. (2005). *Conversation analysis and discourse analysis: A comparative and critical introduction*. London: Sage.

Wigham, C. (2017). A multimodal analysis of lexical explanation sequences in webconferencing supported language teaching, *Language Learning in Higher Education,* 7(1), pp. 81-108.

Witkower, Z., & Tracy, J. L. (2019). A facial action imposter: How head tilt influences perceptions of dominance from a neutral face. *Psychological Science.* 30(6) 893–906.

Wolter, B., & Yamashita, J. (2017). Word Frequency, Collocational Frequency, L1 Congruency, and Proficiency in L2 Collocational Processing. *Studies in Second Language Acquisition,* 1–22. Retrieved from http://doi.org/10.1017/S0272263117000237

Yang, J. (2013). *A multimodal study of response token dui dui dui in Mandarin conversation*. Unpublished Ma dissertation, University of Alberta, Canada.

Yang, Li-chiung. (2010). Harmony and Tension in Mandarin Chinese Prosody: Constraints and Opportunities of Lexical Tones in Discourse Markers. *Speech Prosody 2010-Fifth International Conference*. Retrieved from https://pdfs.semanticscholar.org/ccf0/bd088832a0805c968c455c783b87b365da13.pdf

Yang, S. (2014). Interaction and codability: A multi-layered analytical approach to discourse markers in teacher's spoken discourse. In J. Romero-Trillo (Ed.), *Yearbook of corpus linguistics and pragmatics 2014: New empirical and theoretical paradigms* (pp. 291-313). Berlin: Springer.

Youngman, M. (1994). Supervisors' and students' experiences of supervision. In R. Burgess (Ed.) *Postgraduate Education and Training in the Social Sciences: processes and products, Higher Education Policy Series*. London: Jessica Kingsley.

Wilson, D. (2011). The conceptual-procedural distinction: past, present and future. In: Escandell-Vidal, V., Leonetti, M., Ahern, A. (Eds.), *Procedural Meaning: Problems and Perspectives*, (pp. 3—31), Bingley: Emerald

Winner, T., Selen, L., Murillo Oosterwijk, A., Verhagen, L., Pieter Medendorp, W., van Rooij, I., & Toni, I. (2019). Recipient Design in Communicative Pointing. *Cognitive Science*, 12733. Retrieved from https://onlinelibrary.wiley.com/doi/epdf/10.1111/cogs.12733

Wittenburg, P., Brugman, H., Russel, A., Klassmann, A., & Sloetjes, H. (2006). ELAN: A Professional Framework for Multimodality Research. In *Proceedings of LREC 2006, Fifth International Conference on Language Resources and Evaluation.*

Wouk, F. (2001). Solidarity in Indonesian conversation: the discourse marker ya. *Journal of Pragmatics*, 33(2), 171–91.

Yeganeh, M. T. & Ghoreyshi, S. M. (2015). Exploring gender differences in the use of discourse markers in Iranian academic research articles. *Procedia -Social and Behavioural Science,* 192, 684–689.

Yin, R. (2009). *Case study research: Design and methods* (4th Ed.). London: Sage.

Yu, M. (2005). Sociolinguistic competence in the complimenting act of native Chinese and American English speakers: A mirror of cultural value. *Language and Speech*, 48(1) 91–119.

Yu, S. (2009). *The pragmatic development of hedging in EFL learners*. (Unpublished doctoral dissertation). City University of Hong Kong, China.

Xu, L & Hu, J. (2019). Language feedback responses, voices and identity (re)construction: Experiences of Chinese international doctoral students, *Innovations in Education and Teaching International*, 1-12. Retrieved from https://doi.org/10.1080/14703297.2019.1593214

Zhang, G. (2013). The impact of touchy topics on vague language use. *Journal of Asian Pacific Communication*, 23, 87–118.

Zelic, G., Kim, J., & Davis, C. (2015). Articulatory constraints on spontaneous entrainment between speech and manual gesture. *Human Movement Science*, 42, 232–245.

Zellers, M. (2011). *Prosodic detail and topic structure in discourse*, unpublished doctoral thesis. University of Cambridge, UK.

Zellers, M., & Post, B. (2012). Combining formal and functional approaches to topic structure. *Language and Speech*, 55(1), 119–139.

Zimanyi, K. (2009) On impartiality and neutrality: a diagrammatic tool as a visual aid. *Interpreting and Translation*, 1(2), 55-70.

Zuczkowski, A., Bongelli, R., Vincze, L., & Riccioni, I. (2014). Epistemic stance: knowing, unknowing, believing (KUB) positions. In: A. Zuczkowski, R. Bongelli, I. Riccioni, & C. Canestrari (Eds.), *Communicating Certainty and Uncertainty in Medical, Supportive and Scientific Contexts*. (pp. 115–136). Amsterdam/Philadelphia: John Benjamins Publishing.

Appendix 1: transcription conventions

[	A left square bracket marks the point at which vo overlapping utterances start
]	A right square bracket marks the point at which vo overlapping utterances end.
(.)	Short untimed pause
(2.0)	Intervals timed to one tenth of a second
?	interrogative intonation
=	Temporary latched talk
↓	Falling or final intonation contour
↑	Rising intonation
,	Continuing intonation
wo::rd	An extension of a sound
◦word◦	Quieter than surrounding talk
WORD	Louder than surrounding talk
(word)	Uncertainty or transcription doubt
word	Emphasis
>word<	Faster than surrounding talk
<word>	Markedly slowed or drawn talk
.hhh	Audible inhalations
(( ))	Transcriber's descriptions of nonverbal events

Appendix 2: Participants' information sheet

Study title: An investigation into student-supervisor's interaction in the context doctoral supervision sessions

Invitation to participate in the study:

My name is Samira Bakeer and this research forms part of my *PhD* study at Nottingham University. Before I came here, I was an English teacher at various secondary schools in Libya for several years. You are kindly invited to take part in this study. Before you agree to do so, it is important that you understand the purpose and nature of the research and what your participation will involve. Please read the following information carefully, and please do ask if anything is not clear, or if you want more information. Contact details are given at the end of this information sheet.

The aim of this research is to find out how doctoral students and their supervisors interact with each other in the context of supervision sessions. The information you provide will help to understand this dynamic of interaction. I aim to recruit participants who are studying and also who are supervising PhD degrees at Nottingham University.

Participation is entirely voluntary. It is up to you to decide whether or not to take part. If you do agree to take part, you will be asked to sign a consent form. If you agree to take part, you may still withdraw at any time, without giving a reason. If that happens, any information or data you have given will not be used in the study.

The data is collected through video recording of your supervision sessions, if you are happy for me to do so. The video-tapes of the supervision sessions will be viewed in private only by me and members of my supervisory team for the purposes of the analysis. It will be transcribed into a written form by me. I fully appreciate their confidential nature and I have given an undertaking not to disclose any information.

All of the tapes and information will be coded (referred to only by a number) and stored in password-protected files. After the study is finished, all of this material will be

locked securely in the research office for 7 years (we are not allowed to destroy the data in case there are any future queries about the conduct of the research). As we sift and analyse your information, we will take steps to protect your identity by changing names, locations and other significant information. This will ensure that any direct quotations or observations published as part of the research findings cannot be traced back to you.

I recognise that this study will generate a lot of information (video, audio and written) that I may not be able to thoroughly analyse as part of my PhD. At the end of the study, I will ask for your consent to share this with other academics for research purposes. When I come to present the study to a broader audience, for example at conferences, it may be helpful to support the research findings with personally identifiable video images and/or audio extracts. I will ask you for your consent for this, once you are fully aware of the content. However, identity will be masked if you request this. Please be reassured that I will not release any personal information without your signed consent, which you will be under no pressure or obligation to give.

If you are willing to be involved in my research, please contact me by email (aexsaba@nottingham.ac.uk). In return, and as a standard reward or token of appreciation, you will be paid 20 pounds for each videotaped supervision sessions.

I am looking forward to your reply

With best wishes,

Samira Bakeer

Room C24 School of English

The University of Nottingham

Trent Building NG7 2RD

Appendix 3: Informed Consent Form

Title of Project: An investigation into student-supervisor's interaction in the context doctoral supervision sessions

Name of Researcher: Samira Bakeer

Supervisors: Svenja Adolphs and Louise Mullany

Thank you for your interest in taking part in this research.

I would appreciate it if you could complete this form after you have read the Information Sheet and listened to an explanation about the research. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you to decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

Participant's Statement

Yes ☐	No ☐	I confirm that the purpose of the study has been explained and tha ave understood it
Yes ☐	No ☐	I have had the opportunity to ask questions and they have bee ccessfully answered
Yes ☐	No ☐	I understand that my participation in this study is voluntary and tha n free to withdraw from the study at any time, without giving a reason ar ithout consequence
Yes ☐	No ☐	I understand that all data are anonymous and that there will not b y connection between the personal information provided and the data
Yes ☐	No ☐	I understand that there are no known risks or hazards associated wi rticipating in this study
Yes ☐	No ☐	I confirm that I have read and understood the above information ar at I agree to participate in this study
Yes ☐	No ☐	I confirm that I am over 16 years of age
Yes ☐	No ☐	I consent to my data being transcribed and wish to be referred onymously in written forms of dissemination
Yes ☐	No ☐	I consent to my data being transcribed and to be identified by nam d job title in written forms of dissemination
Yes ☐	No ☐	I consent to a video file of my participation to be used, but would lil entifying factors (e.g. face covered and name removed) from ar esentation of my data including research dissemination

Yes ☐	No ☐	I consent to an audio/video file of my participation to be used with ar ailable identifying factors from any presentation of my data includir search dissemination

Name of Participant	Date	Signature
Name of the researcher	Date	Signature

Appendix 4: The annotation grid

Verbal and non-verbal cues	Attributes
Speech turn	Segmentation of student/supervisor' speech into turns
turn management types	Turn-maintaining; Turn-taking; Turn-yielding; Turn-offering
turn transitions types	Smooth switches; Overlap; Pause interruption; Simple interruption; Butting-in
Turn timing	Pauses; gaps; silence; lapses
Types of DMs	Tagging the discourse markers in each turn
The positional slot of DMs	Turn-initial; turn-medial; turn-final; isolated
Function of DMs	Interpersonal; referential; structural; cognitive
Gesture form	Basic linguistic description of the body movements and their trajectories
Gesture phases	Preparation; Stroke; Hold; Return
Gesture function	Iconic; Metaphoric; Deictic; Beat-like; Recurrent
Temporal relation	Synchronous Anticipates Follows

- Criteria for identifying turns

- For turn-taking, an Inter-Pausal UNIT (IPU) is defined as a maximal sequence of words surrounded by silence longer than 50 ms (Gravano and Hirschberg 2011).

- A *turn* is defined as a maximal sequence of IPUs from one speaker, such that the gap between any two adjacent IPUs contains no speech from the interlocutor:

➢ Smooth switch (S): Transition from speaker A to speaker B such that A manages to complete his/her utterance, and no overlapping speech occurs between the two turns. Overlap (O): Same as S but with some overlapping speech.

➢ Pause Interruption (PI): Transition from speaker A to speaker B such that A does not manage to complete his/her utterance and no overlapping speech occurs.

➢ Simple Interruption(SI): Same as PI but with some overlapping speech.

➢ Butting-In (BI): Failed attempt from speaker B to interrupt speaker A, who thus continues speaking

Criteria for identifying DMs

- Optionality (syntactically and semantically optional but not redundant, in that, their removal does not alter the grammaticality of the utterance)
- Non-truth-conditionality, weak clause association (occur outside the syntactic structure)

  Each instance of these markers is analysed manually according to these criteria, and non-DM instances are thrown out.

Functions of discourse markers

- Interpersonal: interactive management of the speaker-hearer relationship in order to reduce social distance and indicate rapport between the speakers
- Referential: gives more emphasis to the semantic relations to ideas structures, in that, DMs connect previous and subsequent segments in meaning.
- Sequential: focuses on how the speaker organises turns in talk-in-interaction such as indicating connection and conversion between topics, opening boundary, closing boundary, topic-resuming and topic-shifting.
- Cognitive category: drawing on the speaker's thinking process which include DMs such as those indicating reformulations or elaboration.

Timing

- pauses (e.g., between units by the same speaker)
- gaps (between speakers)

- silences (meaningful absence of speech, e.g., after a question)
- lapses (where no-one has self-selected to speak).

Data bank

Transcript for Session one (ST1-SP1)

SP1 she leaves.

ST1 yeah.

SP1 oh ok I thought we will have a customer uh an audience her as well.

ST1 haha no haha.

SP1 um I have to stay still uh well anyway.

ST1 yeah.

SP1 lets forget about the cameras

ST1 yeah.

SP1 Well, it will be good if that get in uh umm (3.2) the only thing

I think is that (1.4) there might be more formulaic formulaic but

if they have a pedagogy, if they have a pedagogical strand.

ST1 yeah.

SP1 um that would be good.

SP1 because I think if I remember looking (.) They had something on

pedagogy on their page

ST1 and I remembered I asked Laura about the abstracts and she said um

like (0.4) not many abstracts were about formulaic so

SP1 really

ST1 yeah yeah, yeah I don't know why.

SP1 How is that?

ST1 I don't know um some some of them yeah (1.3)

SP1 Ok uh (0.5) that's that's like journals and that's like um (0.6) yeah

people just apply whether they (want to

ST1 and I) think the extension as well is just (0.2) because they

extended to me not Laura by herself you know

SP1 oh ok

ST1 So maybe there is there aren't many proposals or many abstracts there

SP1 well, I might (.) well it's a bad habit, but my experience is some of

these smaller uh (0.4) journelas uh conferences uh tend to be sort of

a little bit more flexible with their extension dates or due dates

ST1 ok so this one is a very small, (a smaller one

SP1 It's not huge) I wouldn't say it's big.

ST1 yeah

SP1 right um yeah (2.8) I wouldn't say it's a big one.

ST1 umm.

SP1 I think it's kind of only Europe (.) I don't know how much you get (.)

I mean it gets pretty good.

ST1 John is going to be there.

SP1 Sorry?

ST1 John is gonna be there.

SP1 He said he is.

ST1 yeah.

SP1 um It's asking. It's he said uh whether is (2.3) wether his wife let

him go so that he doesn't have to mark uh walk uh she doesn't have to

walk the dog (.) she didn't want to walk the dog so (1.6) it's up to

the dog I think.

ST1 hahaha.

SP1 uh and then also (1.2) I think Sarah was telling me that David Wood

the guy remember was Alhassan and Wood article.

ST1 yeah.

SP1 You were writing on and then so he said he was thinking of going um

(.) actually (1.3) did you see his new book?

ST1 He has a new book.

SP1 yeah Introduction to Formulaic Language.

ST1 OK.

SP1 Introduction what it would be good for (2.4) for you uh fundamentals

of formualic language it's like that

ST1 I'm gonna check it yeah

SP1 It's not in our library (.) I think I've asked for our library i've

asked (0.6) I bought it, actually if you want to uh I don't have it

here though uh it's what did you good for sort of talks about what

needs to be done (0.8) and if it gives a lot of things on when we need

more pedagogy, research, and things like that.

ST1 um

SP1 um so give me a good background of something to make you happy with

that review for stuff you haven't seen before.

ST1 uh.

SP1 and like I said it gives an impetus for research that you can talk

about (0.4) uh I've asked (.) I think I was at least times were to ask

twice for our liberary to get it. I don't know if there's a digital copy, which is usually the problem uh (o.3).

ST1 It's a new one right.

SP1 It's two thousand fifteen I believe

ST1 oh Okay.

SP1 yeah It's kind of a good idea because it's introduction to formulaic

language that people kind of need it

ST1 yeah.

SP1 uh

ST1 you know whay after I did uh after I wrote or (1.2) made all the

designs and uh tests and whatever and when I was writing the abstract.

SP1 um.

ST1 and using my literature review (0.9) I found out that most of the

writing there is not relevant (.) to what I did.

SP1 well, that's because you wrote the literature review and then we

thought, what's that?

ST1 yeah (.) so yeah so it changed alot.

SP1 yeah I'm not.

ST1 yeah.

SP1 (1.6) It's our style here because of that (0.5) year confirmation review to make you do something right away and

ST1 (4.0).

SP1 I'm not the biggest fan of making our literature review (0.50 without a focused study uh because it gets really big and then you don't

really end up using it because

ST1 um

SP1 because you're so big although (.) It leads you to sort of think about everything and you know more stuff that actually (happens,.

ST1 yeah it's helpful

SP1 but) it's a bit of waste in space and time I think

ST1 yeah

SP1 uh but it's a good exercise.

ST1 um.

SP1 but let me see Alison and Ria are going which is good uh actually I remember reading this.

ST1 you are not going or?

SP1 I think I'm going

ST1 yeah.

SP1 but I wasn't gonna present or anything.

ST1 um

SP1 uh may be it would be nice if I go and present so I was like to put

two together um if I present that means that I have to um show up all the data that I have haha.

ST1 you haven't submit uh submitted abstract to that uh
SP1 aha.

ST1 this conference.

ST1 oh ok

SP1 um let me (see

ST1 because everyone is going.

SP1 Zian should have submitted.

ST1 yeah.

SP1 she actually should have submitted yeah.

ST1 yeah.

SP1 now uh there is a strand of teaching there, so that's a good thing Language acquisition and teaching, probably not so many people doing that. Part of that corpus stuff.

ST1 um.

SP1 probably some psycometric uh psycholinguistics stuff, but not a lot of teaching uh so that that's good uh who knows what else? worst case

scenario poster probably

ST1 yeah

SP1 but I was going go anyway I think if I have lots of money

left over if I have any money left over after Florida (.) we'll see but yeah, it's quite a good way of forcing you to do some stuff.

ST1 and yeah when I come back from Saudi I'll get some money from them.

SP1 um.

ST1 because of this journey so I thought that I should spend it in some conferences like these (.) not (very

SP1 sunglasses)

ST1 hahaha no not really.

SP1 a new bag.

ST1 hahaha not expensive conferences but something like this (is just.

SP1 well living in Europe. You know, that's Norbert kind of influence on us uh Triple A. Triple A is good, but living in Europe, we can go to EuroSLA and uh this one and a bunch of little conferences.

ST1 Yeah, you remind me. I will. Should I (0.6) apply for that one

because.

SP1 EuroSLA?

ST1 Yeah, because they.

SP1 the due date it soon right.

ST1 They yeah they opened the call for papers I guess.

SP1 Open or close?

ST1 No.

SP1 Just open right.

ST1 Yeah.

SP1 why is it so late this year (2.4)

ST1 I think it's gonna be in August or something.

SP1 Yeah, but (0.8) usually very, very, very end of August.

ST1 My next study is (.) if I'm going to do it, it is going to be in

September.

SP1 um.

200. **ST1** so I'm not (2.0)

201. **SP1** Finland is expensive uh it would be nice to go to Finland
202. though. Uh It's a good conference (0.6) you get very good
203. feedback. It's pretty uh competitive.

204. **ST1** um.

205. **SP1** When's the due date? When are they going to let us know about uh when

206. are they gonna let us know about uh you know,.

207. **ST1** I don't know I didn't see the dates I saw just the start date.

208. **SP1** where is the call for papers where is it?

209. **ST1** I think in March.

210. **SP1** when does it end?

211. **ST1** I haven't checked it but Benjamin mentioned it in the group

212. **SP1** Yeah, I saw it come out in an email.

213. **ST1** yeah

214. **SP1** but yeah, maybe well (.) keep it in the back of your mind
215. if you don't get into the Floren, one try for that one,
216. although you can probably do(bo:th

217. **ST1** yeah)

218. **SP1** maybe with some things.

219. **ST1** that's what I was thinking you know.

220. **SP1** they tend to ask for more concrete results probably (0.7)
221. so yeah (.)anyway, it's a good start got something in that
222. makes you think about

223. your research a little more um (2.6) and yeah, it was good to sort of

224. put it down and like I said, think about it (not clear).

225. **ST1** um.

226. **SP1** okay uh DCT I think right.

227. **ST1** everything about piloting yeah for everything,.

228. **SP1** OK,.

229. **ST1** So let's start with the DCT whenI did it when I finished the piloting

230. I finished just with the native speaker.

231. **SP1** OK.

232. **ST1** actually she's not a native speaker (0.5) she: is a bilingual.

233. **SP1** OK.

234. **ST1** Which is which helped alot because she is familiar with tthe Saudi.

235. **SP1** OK.

236. **ST1** context but she's American as well.

237. **SP1** oK

238. **ST1** so (0.5) uh so 49 of those situation required no changes.

239. **SP1** oK (.) why?

240. **ST1** because she answered (right away

241. **SP1** the way) you want them.

242. **ST1** yeah (0.6).

243. **SP1** ok.

244. **ST1** She got them right away.

245. **SP1** um

246. **ST1** and (0.4) thirty eight of them she said that like (.) it's not leading

247. but it's can be used there (0.4) and twenty of them she said she will

248. never use it

249. **SP1** OK so (you.

250. **ST1** no) not twenty no no thirty seven.

251. **SP1** oK so what

252. **ST1** I'm going to change those (0.7) completely and this one I'm going to

253. work on the contenxt.

254. **SP1** All right.

255. **ST1** to make it more leading.

256. **SP1** What did you do? did you just give it to her and say like do
257. It or.

258. **ST1** no no no **i**t was like an interview

259. **SP1** OK so you said do this one.

260. **ST1** no no I I read the situation to her.

261. **SP1** OK.

262. **ST1** She responds to me.

263. **SP1** aha.

264. **ST1** and then I said, if you if she used the word, that's fine. If she

265. didn't use it (.) can you think of another word?

266. **SP1** right.

267. **ST1** and she tried a lot of words and then she said that (0.8) I asked her

268. about (them

269. **SP1** that one)

270. **ST1** one in the target.

271. **SP1** yeah.

272. **ST1** and she said maybe (0.4) and she gave me the reason why it doesn't

273. work.

274. **SP1** OK don't forget to open a new file uh word file and just write down

275. the notes what you did because

276. **ST1** yeah that's what I did.

277. **SP1** oh ok, good so just make sure that (you got.

278. **ST1** yeah because her notes were really helpful.

279. **SP1** good.

280. **ST1** Some of them, she said, like, for example, what is it lift? I guess

281. so.

282. **SP1** OK.

283. **ST1** It was about lifting a spoon and she said, like, I'm not gonna say

284. lift the spoon (because it's.

285. **SP1** pick up the spoon)

286. **ST1** yeah pick up but lift is just like for something heavy.

287. **SP1** Yes probably.

288. **ST1** so you can use it like for something heavy so yeah and something like

289. that

290. **SP1** yeah yeah (.) well that's kind of sort of maybe go and hit the corpus

291. of analysis. and thinks of some examples that way.

292. **ST1** and then that's why I did that the first time.

293. **SP1** yeah

294. **ST1** Some of the phrasal verbs she like for example go off she said that

295. the situations that you gave me. It's correct is right. But I'll think

296. for go off like for the apple go off or something like that but not

297. for.

298. **SP1** um.

299. **ST1** I'll use it in that situation more but it wasn't in the fav list, that

300. meaning sense.

301. **SP1** Which means (.) well, that's the fav lists that. Well, that's that's

302. melodies. You know, it's not a fault of it or anything but the way she

303. did it was she went through.

304. **ST1** um.

305. **SP1** the meaning senses and percentages and it could have been close to one

306. of the meanings senses it is just (.) you know,.

307. **ST1** yeah.

308. **SP1** less presentage and it's cut off, especially when you have a lot of

meaning senses then.

ST1 yeah.

SP1 um she definitely could have, you know, cut off quite a few of

meanings.

ST1 um.

SP1 (3.0) well, that's the thing.

ST1 I shoud not change that meaning to the meaning that she told me, even

though (uh.

SP1 um no)

ST1 when I was checking uh (0.4) the dictionaries,.

SP1 what was a meeting she was telling you.

ST1 uh like some fruits went off or something like tha:t
SP1 Oh ok well (0.5) no that's gonna be rea:lly low percentages as well
ST1: (0.7) *I don't know uh* but It was mentioned a lot In the dictionaries really
SP1: Yeah well (0.2) percentages like frequency in the languages versus frequency in uh or use in the textbooks and dictionaries are not alway:s connected
ST1 um.

SP1 Yeah no (.) If you know the reason we chose the fav list is because of

what the fav list is.

ST1 yeah

SP1 yeah. we weren't making these up or would've been the first study was

to come up with a list of teachable from that book uh yeah so

ST1 so those situations that she said that context is now leading. I'm going change that.

SP1 aha.

ST1 make it more leading and that one I will change it completely.

SP1 aha

341. **ST1** but for the ones that she said like it sounds right, but I'm not gonna

342. use it (what should I do with that

343. **SP1** well (.) that's what I was thinking about.um (3.7)

344. **ST1** I thought about two ideas (.) first uh what about if we gave them in

345. the situation like (0.4) because I have everything, all the

346. information, like the verb she used.

347. **SP1** um.

348. **ST1** and I give them uh I'll give them in the instruction like don't use

349. pick up, for example.

350. **SP1** um (0.9) well that's that's sort of uh that's kind of exact the

351. opposite of what I was thinking, but um (2.7) at some point, you're

352. probably going to have to score when they use another word (1.2)

353. correctly.

354. **ST1** um.

355. **SP1** so if (0.5) they said what you want say lift (0.5) but they said pick

356. up.

357. **ST1** um.

358. **SP1** then you would have to have some sort of uh extra scoring (.) or some

359. sort of extra sort of category saying (2.0) non-target item but

360. (correct,.

361. **ST1** correct)

362. **SP1** correct usage (.) now (0.6) will language learners do that so much? um

363. not as much as a native speaker who has such a (.) you know, she

364. could probably supply three or four words for each of those (.) that

365. makes sense.

366. **ST1** um.

367. **SP1** (0.5) so I don't think it's going to happen as much now (1.0) the idea

368. of saying (2.3) the idea of saying that you can't use it (2.4) what is

369. the negative of that? I don't know (0.7) it makes sense (0.4) I like

370. it (.) but I don't know from a (0.7).

371. **ST1** it can control the design.

372. **SP1** yeah.

373. **ST1** (but but

374. **ST1** Is it only)

375. **SP1** but they could use it any time uh anyway, if they didn't know any

376. other would (.) so yeah haha

377. **SP1** (17.0) uh I dont know uh it's different, right? uh because you have

378. the other pre-test, which is the multiple choice (.) so knowledge of

379. the item gets established. It's just using the item (0.6) now what

380. you could say it people would say is that it's kind of more of a.

381. **ST1** (17.2).

382. **SP1** Yeah, it's kind of a bit of a (2.7) not as a natural thing right?

383. **ST1** yeah.

384. **SP1** maybe a little (.) but it still makes us get to the point of what we

385. want to do uh (2.7) You know, I think that if it's phrased even, you

386. know. (4.7) please avoid this word or you know please avoid this word

387. and this word um.

388. **ST1** yeah

389. **SP1** well (.) does does the problem is the problem, though, when you say

390. please avoid this word (.) does that make them only think of that word

391. (0.5) so don't say pick up. Oh, no all I think of is pickup.

392. **ST1** yeah and even though if you say it uh if they don't know any other

393. word they will use it.

394. **SP1** Yeah. Kind of. Yeah.

395. **ST1** yeah

396. **SP1** (3.7) now, hopefully (.) well the ideal would be (7.4) the ideal would

397. be that we you know, you've just taught it (.) you've actually just

398. done a (1.4) you know, this is a great thing, but it shouldn't give

399. them the instruction, you've taught it, you've done a test with.

400. **ST1** um.

401. **SP1** (5.0) and then you ask, what is this course completion task? It really should be at the front of their brain, you'd think.

402. **ST1** um.

403. **SP1** now if they answer without those words, I think (0.5) you know (.) categorizing, you know suitable answer for that target answer is something may be interesting in its own right.

404. **ST1** Is it production by itself.

405. **SP1** well, it's production right but (1.4) It is not enough (.0 you know, the teaching wasn't enough for you know, the teaching wasn't enough to (1.7) supersede or, you know, right overwrite basically.

406. **ST1** um.

407. **SP1** What they already had something available for them to do right so the idea that (0.9) OK so we talked about phrasal verbs. And from a pedagogical point of view, you know, the kind of difficult to teach.

408. **ST1** yeah.

409. **SP1** and it's uh and then people don't use them very much.

410. **ST1** yeah.

411. **SP1** and I think probably the reason they don't use them is that they don't use them because there's more likely to make mistakes because he separate them or don't say that they're going to work what do you know (0.3) that kind of idea

412. **ST1** um.

413. **SP1** or the other reason is that they've already got a nice single word verb.

414. **ST1** yeah.

415. **SP1** then why bother having a new meaning for it right.

416. **ST1** yeah.

417. **SP1** why bother at all (.) so when there is a high frequency synonym for the phrasal verbs (2.3) perhaps students are less likely to want to use it (0.4) or learners are less likely to use it (0.6) and maybe (.) you know if the pedagogical thing is, yeah (.) you know, the fav list is great (0.7) but when it's a synonym of a high frequency, we don't really need to teach it to lower intermediate students awareness of it. Productive, maybe not so much.

418. **ST1** yeah.

419. **SP1** so (0.7) another way of saying this is yeah, I get the idea of putting don't say this word idea (4.2) and hopefully they don't say that word (2.7) but if you (3.2) If you can't force them to say it and they don't say it on their own, then.

420. **ST1** um.

421. **SP1** that's finding in its own right.

422. **ST1** yeah)

423. **SP1** to keep) track of (2.8) and she said, Oh, yeah, I could use that word (2.1) but you know, those whatever twenty eight or whatever,.

424. **ST1** yeah.

425. **SP1** or I couldn't use that word, but oh, this one was just came to mind faster. Kind of idea.

426. **ST1** yeah.

427. **SP1** yeah well (0.3) that's (.) production right

428. **ST1** yeah.

429. **SP1** that's that's spoken (.) you know when we were writing there, I had the source. how many (.) so many times but we don't do that in Spoken.

430. **ST1** yeah.

431. **SP1** we (0.5)

432. **ST1** just say it.

433. **SP1** we just say it uh (3.1) I remember a (0.4) not really related, but it kind of related I guess that (0.8) I would with (.) my own language ability in English I used to just say I'm so bored of my own language because I only say things one way,.

434. **ST1** um.

435. **SP1** I could basically make every point (2.4) but I never had any variety in the way I made my points.

436. **ST1** You mean in your writing or.

437. **SP1** no this is in Japanese,.

438. **ST1** oh ok.

439. **SP1** In English I can say lots of stuff haha.

440. **ST1** yeah I know I know.

441. **SP1** but in Japanese not so much variety right.

442. **ST1** oh yeah)

443. **SP1** but I can) do anything, but I don't have a lot of sort of uh.

444. **ST1** yeah.

445. **SP1** Synonyms or things like that (.) because you don't learn them after a while.

446. **ST1** ahm.

447. **SP1** so I don't know if it's a common thing but (0.6) you know, maybe maybe it's a higher level or anything.

448. **ST1** for lower level they would not do it

449. **SP1** do you think it eases root and that's kind of (you know

450. **ST1** they will use get because get can work with everything haha

451. **SP1** Yeah. Yeah. Yeah. That's. Yeah so.

452. **ST1** haha.

453. **SP1** so what you might need to do later on is have another um (2.1) so you mark it right or wrong for what the target items were.

454. **ST1** yeah

455. **SP1** and then you have to have it with some (0.8) um with some (1.5) judges to see the acceptability of these items perhaps.

456. **ST1** um.

457. **SP1** uh given the situation (1.2) you can quickly see how uh yes semantic suitability (0.4) is the key but then (1.7) If they don't can't formulate the grammar than some other (2.1) you know target on their target but other items could be used instead. I don't know.

458. **ST1** um.

459. **SP1** but yeah, I don't think they want leading words. I think you just want to score it afterwards.

460. **ST1** Yeah.

461. **SP1** (If that's

462. **ST1** and I shouldn't uh like change those three eight uh thirty eigh I mean

463. **SP1** No. No.

464. **ST1** just leave them as they are.

465. **SP1** I mean go and see them again.

466. **ST1** Yeah.

467. **SP1** see If there's anything you can tighten up.

468. **ST1** . Yeah.

469. **SP1** If you know this woman well maybe ask her again, just see if anything you change she would change it as well.

470. **ST1** um.

471. **SP1** See if you can tighten it up, see what you can do but I wouldn't make too many changes. It's the other ones that where she said no.

472. **ST1** um.

473. **SP1** those are the ones that really need changing.

474. **ST1** and uh should I pilot them again after chaning (them.

475. **SP1** Somehow yeah. Yeah. You really want to get them.

476. **ST1** With the same uh.

477. **SP1** Maybe the same person plus another one if you could possibly do it quickly.

478. **ST1** It took three hours.

479. **SP1** oh Ok so.

480. **ST1** Nobody will agree with that (reallyhaha.

481. **SP1** now I guess yeah uh why did it take three hours?

482. **ST1** uh (2.7) It's one hundered twenty four (situations.

483. **SP1** yeah and) then you have follow up questions and talking about it.

484. **ST1** yeah and she tried (0.3) like (0.7) for example, at the beginning, she tried all the verbs that she can think of

485. **SP1** yeah.

486. **ST1** and then I asked her.

487. **SP1** but then you're doing it over four weeks so it's not gonna
488. take the students four(hours
489. **ST1:** I mean)↑ about the piloting
490. **SP1** Yeah.

491. **ST1** So yeah.

492. **SP1** Yeah you (you
493. **ST1** If I can manage to find uh find an uh another uh I mean
494. another person to do it for me, it's fine but
495. **SP1** even if you're just doing the last ones, the ones you've
496. changed.

497. **ST1** um.

498. **SP1** You don't need to do all of them again. I don't think really just the ones that you tweak.

499. **ST1** oh ok)

500. **SP1** uh change).

501. **ST1** now about)

502. **SP1** which should) be quicker.

503. **ST1** about about this DCT uh (0.6) I think after I finished the piloting (o.6) we we should have just like (.) including the instruction for the students like (.) use verbs use phrasal verbs (1.0) because (0.4) and include all the situations for verbs at once and the others with uh (0.8) for phrasal verbs because again (2.9) yeah, because again, they will think about phrasal verbs uh (1.2) verbs instead of phrasal verbs you know.

504. **SP1** Doo doo doo doo doo,.

505. **ST1** Divide them in two i don't know

506. **SP1** You get less and less (1.0).

507. **ST1** natural.

508. **SP1** yeah but (11.4) yeah you get less and less natural, but you quickly see the idea of (0.5) uh the value in that (0.5) unfortunately, you can't really pilot this (0.4) because you won't know how people

start answering until you have the answers (0.9) now thinking about it in advance is obviously a good way of doing it.

509. **ST1** um.

510. **SP1** but um (2.3) is it too natural, too leading (.) it obviously makes it simpler (2.1) for the student, because now they're focused in on something you've taught them.

511. **ST1** yeah

512. **SP1** (0.7) which is kind of okay, because that's kind of what you're hoping for (2.1) I guess

513. **ST1** we already said that will mention the destruction use like the verbs uh the words that you've been taken in last week or something.

514. **SP1** right yeah.

515. **ST1** We already said that instead of that, we can just like give any instruction.

516. **SP1** and the instructions is that (.) separate It's not fifty (.) you know it's not one word, single word uh next one's a formulaic uh phrasal verb and it is kind of separated.

517. **ST1** yeah and for each session for each week we'll have like eighteen.

518. **SP1** and I guess it's not like (0.7) I guess the idea is not like that they they um (7.1) It's not like that they (3.0) It wasn't like incidental vocabulary learning either (2.9) you know we were sat them up if we told them what phrasal verb is and we told them the sort of differences, I assume right

519. **ST1** yeah.

520. **SP1** so telling them (.) you know, they're aware (0.4) they're aware right of what a phrasal verb is.

521. **ST1** yeah.

522. **SP1** So they're aware of what a phrasal verb is (.) they're going to be aware that that's what you're teaching them um (2.1) you know, they just are because they know what they are.

523. **ST1** um.

524. **SP1** most learners at that level would.

525. **ST1** yeah

526. **SP1** but yeah, I don't (.) yeah I don't really see (5.9) I don't really see a problem by separating them you can even give that same example every week using um (2.4) a non-target single.

527. **ST1** (item.

528. **SP1** word) and add a non target phrasal verb.

529. **ST1** yeah

530. **SP1** You're giving this hint (.) you say this (.) you're given this hint (.) you say this you can give the same one every week uh doesn't matter after the first one really.

531. **ST1** yeah.

532. **SP1** yeah um I'm sure there's a non-target um phrasal verb in a non-targeted verb you can use that they all know and understand.

533. **ST1** Yeah ok w efinished with the DCTes now from the multiple choices I managed to get like twenty five. I'm waiting for five people to send me.

534. **SP1** Oh ok good, good that's good.

535. **ST1** So it's going to be like 30.

536. **SP1** so what's it look like any idea yet.

537. **ST1** uh (2.0.0 I just input uh input the results there.

538. **SP1** um.

539. **ST1** but (0.7) I am (.) wondering what analysis should I carry on.

540. **SP1** uh.

541. **ST1** ANOVA.

542. **SP1** uh I don't care uh (0.5) no why uh I'll tell what the most easy thing is

543. **ST1** oh ok.

544. **SP1** now how many uh (0.5) the percent A, B, C and D.

545. **ST1** um.

546. **SP1** and what you can do is you can kind of have (0.9) uh you can highlight perhaps if it B uh if B is correct you highlight it right.

547. **ST1** um.

548. **SP1** and you're gonna want (3.2) that these uh (0.5) let me uh now
549. (5.2)
550. SP1who are the pilot people again uh who are the subjects
551. St1: They are mixed, all of them are Saudis but they are mixed
552. uh there is high level there is low level there is
553. SP1: Alright
554. ST1: Intermediate or whatever
555. SP1: So you want the high level to get more right
556. ST1: Yeah
557. SP1: Now the idea would be that (0.2) you don’t want(0.4)
558. well if it’s right you want most of them kind of be
559. higher percentage, right?

ST1: Um
SP1: And then lower and lower and lower uh if it’s wrong you probably wana it to spread across that means all of the distractors are kind of working equally well perhaps

ST1 um.

SP1 So the idea is (4.1) Ok because ha. It's also it's also VLT style isn't it.

ST1 yeah yeah

SP1 So a good thing about this is (.) yeah ABCD is fine and You have it. Yes. But if you're getting an item that you see here, that's a high percentage (4.2).

ST1 um.

SP1 For a certain item, for a certain word than this this item here, this distractor perhaps is not working right.

ST1 um.

SP1 So it might be almost correct to some people. So you're going to want to do more of an item analysis rather than right or wrong all right.

ST1 ok.

SP1 right or wrong is a good thing. You ought to go through and check for right or wrong. You also want to think about who your people are.

ST1 um.

SP1 Are they high level or are they native speakers of English or whatever? They should be getting them all right and not have any problems um (3.2) your low level learners should be probably getting them all well most of them wrong. at least probably two thirds of them wrong anyway,.

ST1 yeah.

SP1 because they're three meaning senses . Second, they're making sense. Right.

ST1 yeah.

SP1 but mostly what you're trying to look for is whether you're finding any distractors that are being chosen too often or if you've got, you know, just bad items. For some reason, no one's picking the correct answer. So you might. You know, there's a number of things that could be typos. You might have the wrong word. And I noticed.

ST1 um.

SP1 It could be that you haven't figured out (.) you didn't notice that this distractor, which is wrong.

595. **ST1** yeah.

596. **SP1** (2.0.) In this situation, could be right. You know, you know how when you take a test, you go, well, this could be right. So some some people are choosing it um It's a typos, things that are kind of ambiguous. Mostly you're looking at the items and how they're being answered rather than right or wrong.

597. **ST1** yeah.

598. **SP1** right or wrong is good too.

599. **ST1** ok.

600. **SP1** because you want like I said, the higher people get more right than the lower people.

601. **ST1** um.

602. **SP1** so you want to look at that kind of thing. There's probably somewhere in one of the (3.1) research methods, books something about item analysis.

603. **ST1** item analysis.

604. **SP1** Yeah.

605. **ST1** I tried to look for the piloting but not

606. **SP1** Well it all depends on what you want to do, right.

607. **ST1** yeah but item analysis It haven't really

608. **SP1** Take a (look at

609. **ST1** so it's) good good.

610. **SP1** You know the book that Bia has on her book desk right now uh she has that uh (2.7) yellow book for research methods.

611. **ST1** what is it excell for dummies or

612. **SP1** no hahaha.

613. **ST1** hahaha.

614. **ST1** SPSS uh.

615. **SP1** no no no it's an old esearch methods book uh (11.2) is it Hatch uh It's an old book (2.5) but the basics of it are, yes (.) there you go

616. **ST1** oh.

617. **SP1** Hatch and lazaraton the research manual.

618. **ST1** uh I have another one but not that one.

619. **SP1** same people.

620. **ST1** no really.

621. **SP1** the (design is.

622. **ST1** it is a yellow) as well hah but it's not that one.

623. **SP1** Bia has one right now (.) I don't know if it's a library book or not but.

624. **ST1** is that one good really

625. **SP1** It's good for some old like uh like she's she's using it right now for some kind of old style stats, if you will.

626. **ST1** um.

627. **SP1** Stuff that people don't use very much, but it's very good basics. I would imagine that it has item analysis of some sort in it uh.

628. **ST1** um.

629. **SP1** at least the idea of uh (0.2) it's not complicated complex or com concept, but just the idea that your high level people get more. There's only one book I think Bia has it then.

630. **ST1** Yeah.

631. **SP1** Yeah. Just go and ask her for it uh the (idea.

632. **ST1** I will think) of it.

633. **SP1** just take it.

634. **ST1** hahah.

635. **SP1** the idea of uh the higher people get better results.

636. **ST1** yeah.

637. **SP1** Lower people get uh It's kind of that idea that before (o.4) before you look at the data.

638. **ST1** um.

639. **SP1** Think about what the data should look like. And if your data doesn't look like what you think it should look like, then why not? And that's it comes down to a test like this. Native speakers get them all right. High levels get less right and then down, down. And then finally, people that look like your target uh or your participants should have hopefully not many. Correct.

640. **ST1** OK good.

641. **SP1** right. You don't one have very many correct cause you're teaching them.

642. **ST1** yeah good yeah.

643. **SP1** Because you (have some.

644. **ST1** because yeah I had one student and I was just thinking that she's going to be like my student there.

645. **SP1** um.

646. **ST1** and she gets like thirty eight items correct.

647. **SP1** Out of.

648. **ST1** One hundred forty four

649. **SP1** Right. 144. That's that's that's almost perfect.

650. **ST1** yeah.

651. **SP1** . That's like the first meeting sense of. That's the first meeting sense of the forty two items or whatever it is, which is almost perfect if you get that result in your pretest that's an interesting finding in its own right. That yeah, they do know that and it supports the idea of depth of knowledge instruction Yet the meaning sense is this, but because we're basing it on the fav list, we know the percentage of voc uh meanings that they would know right.

652. **ST1** yeah.

653. **SP1** and that's actually the little analysis you do with the phrasal verbs. If they know the meaning uh (0.6) because you have the percentages from the fav list and you know their results, you could say, well, look, if they encounter these forty four words.

654. **ST1** um.

655. **SP1** In twenty nine percent of the cases, they would know the meaning right.

656. **ST1** yeah.

657. **SP1** And a lot of assumptions about um (2.1) knowing meaning is that, you know, one meaning sense or you know one meaning sense you know them all.

658. **ST1** yeah.

659. **SP1** so that analysis in its own right is kind of interesting that you might not know them all or they look they don't know them all (.) and you need to do more depth of knowledge.

660. **ST1** yeah.

661. **SP1** um because a lot of textbooks kind of don't go into depth of knowledge.

662. **ST1** yeah.

663. **SP1** or the other finding is(0.7) that once you do the analysis, I guess with the fav list, I don't think we can do this with the

frequent (.) you know, maybe your calculations might work, but you might say, look, seventy five percent of the time, OK? They don't know the other meaning sense, but 75 percent of time they know the meaning in question.

664. **ST1** um.

665. **SP1** so that's probably enough maybe we don't need to do depth of knowledge kind of thing.

666. **ST1** yeah.

667. **SP1** so either way, it's one of one of those ones which is win win.

668. **ST1** yeah

669. **SP1** Either way, they kind of you kind of have some interesting analysis.

670. **ST1** after the pre-test.

671. **SP1** yes so that's(1.6) that's looking forward towards discussion types questions. And that could be sort of(0.5) post-doc research questions.

672. **ST1** um.

673. **SP1** where, you know, looking at (2.3) what is (4.1) you know, what percentage of learners do they already know it You know,.

674. **ST1** yeah.

675. **SP1** that's something you could talk about for page or two pages with your with your discussion, for sure.

676. **ST1** Should I look at the different meaning? Like, for example, in the piloting (3.1) because I (2.0)

677. **SP1** Well (1.5) uh what you're saying is isn't always the most frequent one they get, correct.

678. **ST1** Yeah should I look at (them.

679. **SP1** Well) that's something interesting to think about uh um I don't think it matters because that's not your fault if they don't.

680. **ST1** yeah.

681. um (1.7) that's the list's fault essentially (.) or the list versus realities fault. It's not the lists fault because the list was based on a certainuh.

682. **ST1** yeah.

683. **SP1** principal but the reality might be that, yes, it's used 60 percent of the time in this, meaning sense, but it might not be the meaning sense people learn very easily um (0.6) for a number of reasons.

684. **ST1** so it's not important for the piloting.

685. **SP1** not for the pilot. But this could that could be another interesting discussion question of saying, look, they're not getting the first most frequent meaning sense correct very often.

686. **ST1** um.

687. **SP1** uh (0.3) In fact, that only happened at 50 percent of the time. So obviously, there's either single word verbs (1.2) which I don't think is a real expression but we just made it up yesterday.

688. **ST1** yeah haha.

689. **SP1** haha uh single word verbs (.) well, the other verbs uh , the other terms we like action verb or stuff. And there's no.

690. **ST1** no.

691. **SP1** there's no sort of catch-all verb name for verbs.

692. **ST1** no.

693. **SP1** and I didn't like action verb and I didn't like uh.

694. **ST1** verbs by itself.

695. **SP1** uh or state uh or status verbs is not the right one or another one like that as well. and it didn't make it wasn't exactly what you're doing so

696. **ST1** not all of them action verbs like introduce or something.

697. **SP1** yeah single word verbs.

698. **ST1** yeah.

699. **SP1** and the (3.8) so the idea is, look, they're not getting it right.

700. **ST1** yeah.

701. **SP1** because maybe they don't learn them very well or they're not taught that meaning sense in the textbooks.

702. **ST1** yeah.

703. **SP1** We don't know (0.6) or they (2.1) um or they have a more frequent.

704. **ST1** verb)

705. **SP1** Verb) single word verb that takes its place

706. **ST1** Yeah we didn't think about this verb because there is one more frequent verb.

707. **SP1** Well the other (.) Yeah exactly (.) why bother learning it.

708. **ST1** Yeah.

709. **SP1** my uh (3.1) there's a whole bunch of discussion or type of analysis you could do on that that you could think about with some with some good ideas (0.5) the um other item (4.7) I was going to say that might need to sort of follow up research or follow up studies but yeah maybe isn't uh so that's the idea.

710. **ST1** Yeah haha let's finish with this study first

711. **SP1** oh no no you should have more plans in advance.

712. **ST1** haha okay now for lesson plans for the powerpoints because i start do them uh doing them this uh next week.

713. **SP1** aha.

714. **ST1** Should I just mention the one examples and that's it for them.

715. **SP1** ok one more time so.

716. **ST1** The powerpoints.

717. **SP1** Oh,.

718. **ST1** the powerpoints should know what the different meanings and example one example or two examples or.

719. **SP1** (2.4)

720. **ST1** because you know with he explosure or whatever.

721. **SP1** (2.9) well the key is obviously to be consistent throughout but (7.2) I would say no to the examples.

722. **ST1** (6.1).

723. **SP1** because you're giving examples later in the activities, right.

724. **ST1** (2.1) Yes.

725. **SP1** and it's one more. It's just (0.7) it ends up being one more thing (0.5) that's exactly the same for the: (4.8) yeah for both groups.

726. **ST1** yeah.

727. **SP1** And then you're starting to not know whether what's making the difference, whether that example sentence makes all the difference. And then we get the exact same results in the (0.6) for both conditions.

728. **ST1** so

729. **SP1** so it's (.) yes everything should be the same but that's another learning point or another. Yeah. Exactly. Exposure to it that we don't know whether that's affecting it (.) or whether the teaching conditions are similar.

730. **ST1** so what should we do.

731. **SP1** Just meaing I assume (2.0)

732. **ST1** meaning in Arabic and English or just Arabic uh English

733. **SP1** well that's something you have to think about uh (0.7) but remember, if you're just doing it in Arabic, then that's looking exactly like what the test (is.

734. **ST1** test) yeah.

735. **SP1** So uh (1.5)

736. **ST1** So just English.

737. **SP1** Probably just English.

738. **ST1** Without any examples, really (1.2) It's gonna be hard for them to understand the meaning.

739. **SP1** Well, now in voc uh in vocabulary in use (1.0) what would they do.

740. **ST1** Use examples in (the explanation.

741. **SP1** Well, that's) well, that's kind of what we're doing (.) well in the explanation.

742. **ST1** in the exp uh exlpanation uh explanation and exercises

743. **SP1** If the example isn't anywhere in your teaching materials and or in any of your tests (2.1)

744. **ST1** You mean like uh like one of the example is going to be in the test or.

745. **SP1** no none of the examples are on any of the other tests.

746. **ST1** no.

747. **SP1** . So it has to be entirely different.

748. **ST1** From almost).

749. **SP1** almost) uh (1.6)

750. **ST1** entirely different. I'm not sure it's the same meaning.

751. **SP1** not entirely different but it has to be very different though.

752. **ST1** yeah.

753. **SP1** For at least as different as you could make it.

754. **ST1** I need to make it controlled I know.

755. **SP1** yeah,.

756. **ST1** but it but should we include them or.(2.1) It's gonna be hard for their level to understand the meaning without them.

757. **SP1** you think so? You think the examples makes that much of a difference.

758. **ST1** Yeah If it's a symbol. Example. Really, really simple example (1.0) You know

759. **SP1** OK. Give me an example of something of a teaching item here. So give me a target item. Give me the English definition and give me your example sentence

760. **ST1** oh oK. Let's say, for example um (3.6) even thoguh there are children playing in the garden uh no no no it is not that example

761. **SP1** So what's the definition of ok go then

762. **ST1** There is introduce to give somebody his name to another person. And like, Amel introduce her friend to us.

763. **SP1** What's the target sentence in the test?

764. **ST1** uh I think uh where is it let me see too many things to remember really.

765. **SP1** Yeah yeah

766. **ST1** but It's the same interduce (2.0) yeah (1.3) you met your cousin and you met uh you and your cousin are like going to the restaurant and you met your friend and you wanted to introduce them to each other to sit down with them.

767. **SP1** um.

768. **ST1** (3.1) so I will introduce them to each other (.) that's the answer I'm hoping to get.

769. **SP1** Um (6.9)

770. **ST1** the meaning is the same how can they be different in examples?

771. **SP1** Yeah, that's the problem, though, isn't it (4.6) that even your examples are different.

772. **ST1** but it's the same

773. **SP1** (0.8) well the meeting in any (2.6) well (0.5) the ideal would be you would probably want the example sentence (1.8) to be as simple as possible as he introduced her to his parents or something.

774. **ST1** um.

775. **SP1** um which is pretty simple (4.2)

776. **ST1** so we asked for the simple examples right um I am not sure

777. **SP1** well (.) part of me wonders if they're gonna learn (7.3) there's no way to use pictures.

778. **ST1** no (0.5) not all of the verbs no, not really, because I tried them already for the test (2.1)

779. **SP1** yeah (5.1) see (.) pictures would (0.5) kind of help to bridge (.) it would be in between the English (.) definition and an Arabic definition kind of right.

780. **ST1** um (unless

781. **SP1** do you) think (1.4) they can learn with an English example uh I mean English definition and English example (0.5) do you think they can learn the words (3.1) Is that most similar to what would go on with vocabuary teaching

782. **ST1** with English example English definition only without Arabic no.

783. **SP1** So that (woun't.

784. **ST1** without practice I don't think no.

785. **SP1** So in the classroom is always gonna be there (0.5) the
786. translation used

787. **ST1** most of the time yeah for vocabulary yeah for grammar yeah
788.
789. but you know like if we wanna use pictures (.) right (.)uh
790. Say about blow and spend uh blow in the meaning sense of
791. spend If we wanna use pictures how can you use pictures for
792. that meaning sense uh I mean↘↗ (0.3) uh I don't know
793. **SP1** um
794. **ST1** it doesn't work right?
795. **SP1** (0.3)yeah
796. **ST1** oh ok good hahah
797.

798. **SP1** now (.) how are you thinking of doing it (.) all three
799. meaning senses at a time

800. **ST1** yeah

801. **SP1** (18.6) they get the teaching (3.1) Arabic example (.)
802. English sentence or no English senrtence (2.1) if you use an
803. Arabic definition what else do you give.

804. **ST1** (6.7).

805. **SP1** So if you were to teach with an Arabic examp uh with an

806. Arabic definition,.

807. **ST1** Not definition, just translation or.

808. **SP1** Yeah, Arabic translation.

809. **ST1** yeah.

810. **SP1** What else would you give? Just the Arabic translation.

811. **ST1** Arabic translation and then give it an example and then (start doing

812. **SP1** why do you) need to give an example if you have the Arabic translation (1.0) because they're going to work on it next.

813. **ST1** Yeah, in the uh in the activity so yeah.

814. **SP1** (5.2).

815. **ST1** and they'll ask you (0.5) about the translation really.

816. **SP1** They uh If you don't give it to them they will want the translation.

817. **ST1** Yeah.

818. **SP1** yeah (3.2) well, the key is to say that this is what happens in the normal teachingr(7.1) remember, the key is not whether or not they can learn them. It's the difference between (.) it's whether they can uh , they can learn through pushed output activities or (.) spoken activities.

819. **ST1** um

820. **SP1** That's the key, not whether (2.0).

821. **ST1** not the (acquisition.

822. **SP1** not really) so much the acquisition, although that's interesting (3.7) um It's whether they can learn them just as well with the pushed output as they would with the written exercises. And then later on with DCT, whether they (.) learn that theoriticly better, hypothetically better with the pushed output for speaking activities right.

823. **ST1** yeah.

824. **SP1** Now (3.0) Is it wrong (2.0) to do all three meetings at the same time?

825. **ST1** That's what you do right (0.5) what do you mean? use it or

826. **SP1** no OK So you're presenting them on the PowerPoint.

827. **ST1** Yeah.

828. **SP1** You have blow.

829. **ST1** uh.

830. **SP1** First meeting,.

831. **ST1** Send out your.

832. **SP1** Second meeting,.

833. **ST1** Spend carelessly and third meaning uh.

834. **SP1** is it blow up.

835. **ST1** a blow chance yeah.

836. **SP1** Oh OK ok (1.0) and the idea would be the PowerPoint would show all three of those meetings together.

837. **ST1** Yeah.

838. **SP1** Now what does the research buy uh what's his name (3.6) uh and then followed up by some uh I think Frank Boors has done research on this as well (.) the (2.0) um presenting things in their semantic sense uh research with vocabulary.

839. **ST1** um what?

840. **SP1** So you should know we talked about it.

841. **ST1** no.

842. **SP1** Norbert talked about it to you.

843. **ST1** really.

844. **SP1** . We did (.) We talked about it back in the Masters.

845. **ST1** yeah io don't know (.) I haven't been to the vocabulary in the master. I didn't take that module.

846. **SP1** Why would you not?

847. **ST1** i don't know.

848. **SP1** uh We talked about it too uh What's his name i forget his name (1.0) the (2.1) research that shows if you learn things together, like synonyms together, hot, cold, big, small oh sorry those are antonyms or synonyms together or things in the same semantic set apple, banana, orange (2.1) it can be confusing people.

849. **ST1** Oh,.

850. **SP1** yeah.

851. **ST1** Really?

852. **SP1** yeah

853. **ST1** even with the different meanings, because we almost teach them hot with cold white and black and, you know like.

854. **SP1** I know it's not right, though. I think we had the same discussion in the masters when we thought it was still ok (3.7) oh what's the guy's name (4.6) so there's one there uh

855. **ST1** What's his name?

856. **SP1** So there's one by Nation and there's a whole bunch of other studies uh learning vocabulary, lexical sets, dangers and guidelines.

857. **ST1** oh ok

858. **SP1** Now uh (8.4.) say I don't know (2.0.) if it's a problem (1.5) because it's meaning senses and that doesn't really (2.1) It doesn't really uh it's not quite the same thing,.

859. **ST1** no.

860. **SP1** But it could be a bit of a (1.0) connection uh who is that researcher was uh his name starts with T (3.2) uh Tinkham T I N K H A M is the original. There's a system article and an SLR article, but if you start with nation, two thousand and uh I don't know when but if you start with Nation.

861. **ST1** yeah.

862. **SP1** look at it.

863. **ST1** . Yeah,.

864. **SP1** Because that's my first (2.1) criticism. If you're teaching with all three main senses at the same time.

865. **ST1** um.

866. **SP1** But (2.1) and the good thing about this one (4.7).

867. **ST1** ok.

868. **SP1** You might just sort of scan them for if anyone talks about polysemy, because really Nation's talking about semantic sets you know (.) apple and orange um.

869. **ST1** (9.4) ok good

870. **SP1** So (.) keep that in mind (1.2.) and be at least prepared (1.2) to say it's not a problem.

871. **ST1** (6.7)

872. **SP1** This one uh I knew there was one by Boers as well (4.2) yes two thousand thirteen language teaching Boers Frank , one might have something to talk about, polysemy a little more (9.2) Yeah, he has the exact sentence. What are we to make of highly polysemous words such as preposition and multi-purpose verbs? What are they? What are we seeing? Cognitive linguistic study, intervention studies.

873. **ST1** Yeah,.

874. **SP1** It's kind of one of those things you want to keep in mind.

875. **ST1** um.

876. **SP1** But ok, so here he literally says um (2.6) it's may seem memory friendly, friendly insight, but digesting information, about a dozen different uses of the word on the bus on Sunday on the phone and distinguishing from in bed in the morning (1.0) seems like a good idea, but it's the kind of studies that get low effect.

877. **ST1** oh.

878. **SP1** Now yeah,.

879. **ST1** interesting to know that really.

880. **SP1** well that's your (teaching.

881. **ST1** the teacher in me haha.

882. **SP1** yeah It's very unteresting to say (0.5) so yeah go to that Nation one go to the Boers one and think of ones.

883. **ST1** yeah.

884. **SP1** This one, this Boers one is probably a good one because it's survey of a lot of research.

885. **ST1** um.

886. **SP1** But I think what you probably could do. Take a look and see what he says. Now you can either go OK (.) you have to teach this polesimous item anyaway right.

887. **ST1** um

888. **SP1** and (1.6) well, you could break them up a new one at a time. Separate first by, you know, 40 uh well I guess would be.

889. **ST1** they are not separate.

890. **SP1** Yeah so it's not that separate.

891. **ST1** no.

892. **SP1** but what you could say is look (2.0) yes, I'm aware of this (3,1) there is a potential for sort of um group learning, you know, mass learning effects or, you know, interference from this.

893. **ST1** yeah.

894. **SP1** But most of the literature when they've looked at this kind of thing and had it when it's been many, many, many, many in an item and a set.

895. **ST1** um.

896. **SP1** This was just three (3.0) and there were only three wods you know there were only, whatever, six words or thing,.

897. **ST1** um.

898. **SP1** and yes, could be a limitation. But, you know, they didn't think it was considering that yet dozens of these different uses.

899. **ST1** yeah.

900. **SP1** , that's kind of what he's talking about there um (2.1) and still you can talk about, you know, he says, but there's still not a lot of research on this and other things that you could talk about um yeah bla bla bla.

901. **ST1** yeah.

902. **SP1** again (0.6) the target vocabulary was pretty contextualised, so the input was there, so there's things to combat that.

903. **ST1** um.

904. **SP1** I kind of see people saying, look, you're doing it, semantic sets is that bad. But if you're aware of it, say, look, yes, I know that that's a thing. But because of what we're trying to teach here, we kind of have to do it in semantic sets.

905. **ST1** yeah.

906. **SP1** that's where it is. You know, the polysemous words, whether it be called semantic sets or not, but that was followed up by (2.1) contextual, cute clues. There's contextual um activities and we believed that it was uh (enough to

907. **ST1** kind of work) yeah.

908. **SP1** All right. So that (.) that's a way to deal with it.

909. **ST1** I forget to uh bring the pushed output activities.

910. **SP1** oh so you didn't ok that's fine we can do it later

911. **SP1** no no I can uh if I can use the descktop.

912. **SP1** ok.

913. **ST1** becasue that one is really important one because she like uh design another one uh you know,.

914. **SP1** Because these are new right.

915. **ST1** the one that we took after the meeting with Anna.

916. **SP1** I think she changed them since then.

917. **ST1** Yes.

918. **SP1** It's the blue flashing light.

919. **ST1** here should I open one session only or.

920. **SP1** ok

921. **ST1** ok here it is uh It's just session.

922. **SP1** oh colour coding

923. **ST1** the colour just helped me with the design you know

924. **SP1** yeah all right ok so what am I looking at here?

925. **ST1** It's fro the pushed output groups to get (the student.

926. **SP1** Right Yea).

927. **ST1** This is student A papers. She will get two papers, one of which just doing the matching, asking, doing the matching and then writing up or saying the sentence not writing really.

928. **SP1** ok so.

929. **ST1** And then there's.

930. **SP1** number one is lay down your pen (.) what do I do.

931. **ST1** You will match it.

932. **SP1** ok.

933. **ST1** First

934.
935. ST1: and try it, try to make a sentence (with
936.
937. SP1: All right), number one over here.
938.
939. ST1: uhm.
940.
941. SP1: and I'll try to mak uh I must lay down my pen or after the test is over, I will lay down my pen ok
942.
943. ST1: OK.
944.
945. SP1: And then what?
946.
947. ST1: Student B will say, OK, if you said one, I'll say, correct, I am student B and then. OK. That's a good example. This is another example I will say that that uh another example (2.6) which is in uh student B papers.
948.
949. SP1: uh (3.9) but
950.
951. ST1: Student B paper.
952.
953. SP1: are these are all student A's sheets.
954.
955. ST1: Yeah.
956.
957. SP1: now there should be another one is the opposite of this.
958.
959. ST1: Yeah
960.

961. SP1: OK yeah (11.2) so now the the A student first, as says, lay down once.
962.
963. ST1: hmm.
964.
965. SP1: in a sentence or something like that and then student B says lay down your pen once in a sentence.
966.
967. ST1: Yeah.
968.
969. SP1: What's going on over here (3.1) here
970.
971. ST1: it's just writing the sentence maybe but I think I should uh I have to have to just to delete it may be I don't know.
972.
973. SP1: what do you need?
974.
975. ST1: Or should I just leave it for them to write the sentence? Because I think they will need a space if they (want to
976.
977. SP1: Yeah, yeah). Will they have time? Will they be able to write down the fall sentence like this.
978.
979. ST1: I think yeah because it's the only activity (0.5) they have
980.
981. SP1: The thing could be uh could be could do a gap where they write (0.6) the gap into the sentence.
982.
983. ST1: um.
984.
985. SP1: So I say lay down, lay down your pen. OK. After the test is over, I will lay down my pen and they go yeah. Lay down your pen.
986.
987. ST1: um.
988.
989. SP1: Here's the other sentence. Please stop writing and they lay down your pen. OK. Please stop writing. Lay down your pen. I can either write it down or you could put Senten uh the same sentences without the words on them maybe.
990.
991. ST1: It will help them to make the sentence with them because they will make the sense by themselvest you know
992.
993. SP1: yeah maybe (.) maybe maybe (2.3) yeah It could be dictation if you think they can do it.
994.
995. SP1: If the sentences are short, it sounds a little longish.
996.
997. ST1: Yeah because I want to give them more context.
998.
999. SP1: yeah yeah I think they possibly can say that.
1000.
1001. ST1: some not al of the examples.
1002.
1003. SP1: and maybe they repeat it over and over again now, I think I've asked this before. Will your students do this? Will they actually talk?
1004.

1005. ST1: It's going to be different. It's going to be different for them but I think they will try it out because we want to uh.
1006.
1007. SP1: OK we've talked about a practice activity first right.
1008.
1009. ST1: um.
1010.
1011. SP1: Where they're doing this kind of activity with totally non related words.
1012.
1013. ST1: uh.
1014.
1015. SP1: a week before.
1016.
1017. ST1: Yeah a week before uh ok.
1018.
1019. SP1: , well, when would you do it?
1020.
1021. ST1: I thought I'd give them example at the beginning. or do you want me to uh a week before ok
1022.
1023. SP1: If you could even do a section of that up to 5 minutes where they are more calm.
1024.
1025. ST1: Yeah.
1026.
1027. SP1: It otherwise you're going to see.
1028.
1029. ST1: um.
1030.
1031. SP1: by the end of the year or year end of the study, they're kind of doing the activity without you telling them much to do. Week once in a you know, a disaster.
1032.
1033. ST1: Um
1034.
1035. SP1: So if there's any way to do a practice activity,.
1036.
1037. ST1: yeah.
1038.
1039. SP1: Showing them how to do the increase activities to make sure, you know, it's one of those things that you you say that you did. You describe what you did. and then instantly people have no problem with that.
1040.
1041. ST1: yeah.
1042.
1043. SP1: It allows you to not have questions asked.
1044.
1045. ST1: Yes.
1046.
1047. SP1: so this is some kind of super high frequency words that they already know for sure.
1048.
1049. ST1: just for the pushed output group right.
1050.
1051. SP1: Well, you probably want to do the same to make sure the activities worked fine for the written activities group as well.
1052.

1053. ST1: they are using this for uh every day so shall I try it
1054.
1055. SP1: Well, you've got the time. I think you kind of match up the timings, right.
1056.
1057. ST1: um.
1058.
1059. SP1: Just make sure it doesn't really hurt. You know, that, you know, it probably will go fast.
1060.
1061. ST1: Do you think. Because I finished reading all the activities do you think it's going to work as apushed output is it good
1062.
1063. SP1: I like it. I like it. It's a good idea. It's the idea of kind of it's it's in between the big idea we had before of umspeaking and talking all the time and pushing output and Zoltan's kind of idea of just saying sentences.
1064.
1065. ST1: Um
1066.
1067. SP1: So it's somewhere in between those, you know, it's a little bit of work being done, but they're also speaking.
1068.
1069. ST1: um.
1070.
1071. SP1: and everybody gets the same amount of speaking practice basically or speaking output.
1072.
1073. ST1: um.
1074.
1075. SP1: Which is good. I think it will work (2.1) no (.) I think it works with students that do it properly.
1076.
1077. ST1: Yeah.
1078.
1079. SP1: Whether you have students that do it properly, I don't know,.
1080.
1081. ST1: Practise it first and then we will see.
1082.
1083. SP1: And you have to be very vigilant (looking at.
1084.
1085. ST1: we cannot find out before I have to go back and teach these are (science students.
1086.
1087. SP1: but You know your students. But you know your students.
1088.
1089. ST1: These are science student. So it's supposed to be the most really good students.
1090.
1091. SP1: OK.
1092.
1093. ST1: The best studentas but I don't know.
1094.
1095. SP1: my issue is, is will they just go ahead and look at my paper, write them down ok give me your people, I'll write them down. I'm done. We're done.
1096.
1097. ST1: I don't think that they will do that no.

1098.
1099. SP1: OK,.
1100.
1101. ST1: They will practice, they will try to practice and I am there
1102.
1103. SP1: You know better than me they are female science students how do you get so many female science students anyway? There's not that many people that are going into science.
1104.
1105. ST1: really.
1106.
1107. SP1: It's underrepresented for females in science.
1108.
1109. ST1: Okay we have a lot of students going for (science in biology
1110.
1111. SP1: What kind of) oh biologist and stuff.
1112.
1113. ST1: On biology, medical and everything I guess
1114.
1115. SP1: all right.
1116.
1117. ST1: because for Arts you have English only or a geograpphy or whatever.
1118.
1119. SP1: yeah.
1120.
1121. ST1: and it is not interesting for them I guess
1122.
1123. SP1: Anyway, you know them (.) you need to know uh you need to be sure and you need to be confident in the classroom and diligent in the classroom to make sure they do it properly because you can see it. you can see it.
1124.
1125. Yeah.
1126.
1127. You can see the learning that does this and says write it down.
1128.
1129. ST1: yeah.
1130.
1131. SP1: You've taught students like that before.
1132.
1133. SP1: Right. Yeah. It's just a matter of uh how many the class size again.
1134.
1135. ST1: Maybe 25 or something like that.
1136.
1137. SP1: OK, so it's 15 groups uh people kind of thing.
1138.
1139. ST1: um you have to control the class and that's it.
1140.
1141. SP1: yes, you have to control the class you have to keep track of people. People have to be discarded from this study or discounted from the study that you have to whatever we just it's just keep track of records.
1142.
1143. ST1: Should I record them while they are doing the tests do you think that it's going to be any use if it after (2.1) because if they need to record, I have to buy all these stuff or something

1144.
1145. SP1: No, I I know that kind of sounds like a follow up second study.
1146.
1147. ST1: Mm hmm. But not for now.
1148.
1149. SP1: That's too much. It's. It's (2.1) No uh follow up study where your record would be with 10 groups, 20 people for five weeks and you you know use all of that.
1150.
1151. ST1: hmm.
1152.
1153. SP1: Yeah. Or eeb. Yeah, that's. And you're specifically looking at how made it, you know, a lot of times. Or something like that.
1154.
1155. ST1: hmm.
1156.
1157. SP1: But here we just kind of getting an idea of you know, whether the activities can lead to what they lead to. Now, depending on the findings. Something like a recorded a bunch of recorder pairs could be a good idea depending on the findings.
1158.
1159. ST1: hmm.
1160.
1161. SP1: If You know, I can think of a bunch of different ways the findings could go, and if the findings change, then we're not seeing any change but if the findings go one way, then the follow up study goes a little differently. If the findings go one way, another way, then you might go another way. And you might be able to run two or three studies at the same time in the follow ups. Just smaller ones.
1162.
1163. ST1: Yeah.
1164.
1165. SP1: where are you recording people? And maybe you record one week or maybe two or maybe a week and then you transcribe it. You're taking a look at about exactly how they use every almost quantitative uh or almost qualitative.
1166.
1167. ST1: yeah.
1168.
1169. look at the way the use the vocabulary.
1170.
1171. yeah they use it yeah
1172.
1173. SP1: but that depends on the first study and the results. You know, if you get kind of results that aren't helpful or not aren't in line with the hypotheses, then you might (3.8) do the whole thing almost again. But with slightly different modif uh with a modification,.
1174.
1175. ST1: or figure out how to improve it maybe.
1176.
1177. SP1: Well, then, yeah, that's the idea of doing it again with a modification to improve it kind of idea.
1178.
1179. ST1: hmm.
1180.
1181. SP1: um we've seen studies like that, you read studies like that where the first one was, you know, this was based on first one word bla bla bla , but nothing worked basically. And then we've done it again.

1182.
1183. ST1: oh it is scary
1184.
1185. SP1: but yours is not set up so nothing works. There's always a comparison. Worst case scenario is pushed out, but doesn't do literally. The worst thing is pushed. Output leads to less learning.
1186.
1187. ST1: you mean uh
1188.
1189. It means less learning, less learning on the multiple choice tests and that's learning for the DCTes actually other worst case is the DCT don't work at all if they never speak.
1190.
1191. ST1: oh.
1192.
1193. SP1: but it's a finding right
1194.
1195. ST1: yeah.
1196.
1197. SP1: and so (3.1) coming out of the worst case scenarios is you say how do we get them to learn to the spoken form you know in an efficient and easy manner to teach. that's teachable.
1198.
1199. ST1: Yeah,.
1200.
1201. SP1: Right.
1202.
1203. ST1: Yeah so what needs to be done with that is just piloting it what a native speaker and change it when it's necessary and uh.
1204.
1205. SP1: Yeah, probably. Yeah.
1206.
1207. ST1: Finished with that right
1208.
1209. SP1: Yeah. Make sure there's no typoes make sure there are no problems make sure all the uh it's good ideal to colour coding. Otherwise you don't notice that stuff uh yeah make sure it's all doable. Even things like how much space you're doing here, does it look like enough to write it down? Things like that.
1210.
1211. ST1: hmm.
1212.
1213. SP1: so nice clean package, though. One page per day double sided that gives out that way.
1214.
1215. ST1: yeah.
1216.
1217. SP1: and the answers are on one page and on the other page, which is nice do you know what I mean so they can flip their own paper over to get the answer.
1218.
1219. ST1: Yeah
1220.
1221. SP1: Only so easily yeah, but it's it's good, it's nice and clean that should work.
1222.
1223. ST1: ok.
1224.

1225. SP1: Again. The only thing here is probably Just the uh might maybe it was like the margin smaller, something like that.
1226.
1227. ST1: Yeah.
1228.
1229. SP1: Yeah, I'm sure that's that's exactly what we talked about with Anna of how it needs to be similar to what they're doing on the other side.
1230.
1231. ST1: yeah.
1232.
1233. SP1: and it does control for what they're doing. And it has it has that certaint uh the students are engaged with it rather then just doing it.
1234.
1235. ST1: Okay so we finished for today.
1236.
1237. SP1: oh really.
1238.
1239. ST1: yeah haha.
1240.
1241. SP1: oh it was so short,.
1242.
1243. ST1: So. Short, hahah and half an hour in the morning and.
1244.
1245. SP1: hahaha.
1246.
1247. SP1: That's fine.
1248.
1249. ST1: So.
1250.
1251. SP1: so we've got that abstract and that's excellent even if nothing comes of it. It's a good practice you can use uh so you can use the same abstract for vocab sig, basically. So it's done. We had to do it anyway. Yeah. The vocab sig one could be one hundered percent the same.
1252.
1253. ST1: Yeah.
1254.
1255. SP1: uh I was going to be Vilnius anyway.
1256.
1257. ST1: EuroSLA as well.
1258.
1259. SP1: You could probably use it for your EurSLA maybe see what the feedback is on it first. Keep an eye EuroSLA uh EuroSLA is probably a little more competitive.
1260.
1261. ST1: um.
1262.
1263. SP1: these are the kind of conferences to go to. Even if the poster seriously just a poster with feedback and you get the name out there, any ideas out there. It's not a bad thing. Yeah. I was talking to a guy did that some sort of research and he was saying, oh, that sounds good with like using the lists and seeing what the teachable and things like that.
1264.
1265. ST1: hmm.
1266.

1267. SP1: And like I said, that David Wood book when I was reading through it did have a lot of this uh it needs to be (2.1) we don't know what we're doing righmuch about teaching.
1268.
1269. ST1: I know we're doing right we are doing good because most of the people that I explained my study to them, they say the same thing. It's interesting. it is good.
1270.
1271. SP1: Yeah. Yeah.
1272.
1273. ST1: Yeah. You are doing a lot of things in one study and it's a big study uh and it's not that big.
1274.
1275. SP1: it is not that big uh It is big. It is big by some people study I mean, it's kind of uh if you take a look at, say, Melodies or Mary Adams third study, they have only like 20 some people, maybe what Mary uh Mary Adams is a kind of qualitative. So it's it's three or four people, right?
1276.
1277. ST1: Yeah.
1278.
1279. SP1: So it's different. Right. It's different in some of the psycholinguistics ones. You know, even Anna's studies they get away auh and I think they have like 25, 30 people into their group so that's different. This is a bigger study. It takes out more. You're not going to run two or three of these in a year. Really?
1280.
1281. ST1: Yeah,.
1282.
1283. SP1: the same way uh any analysis takes forever to do it. You know, once you've done this and written everything up, it's really going to take up similar to the ends there, 150 pages of stuff.
1284.
1285. ST1: yeah
1286.
1287. SP1: So, yeah.
1288.
1289. ST1: So for our next meeting, when I finish like the piloting I guess.
1290.
1291. SP1: hmm.
1292.
1293. ST1: That's what is left and piloting and the powerpoints do you need to look at them?
1294.
1295. SP1: I was just looking at the other, um.
1296.
1297. ST1: yeah.
1298.
1299. SP1: and then then we probably should present the vocab group.
1300.
1301. ST1: Okay.
1302.
1303. SP1: the final version.
1304.
1305. ST1: do you think they will have time because they are preparing their own presentations, for triple. A.
1306.
1307. SP1: We still have two months nobody should be.

1308.
1309. ST1: Okay. Yeah.
1310.
1311. SP1: even if you do it in a half hour and that's important.
1312.
1313. ST1: the tests are ready the uh activities are ready so↑(0.2)
1314.
1315. SP1: It's literally just putting these things out into examples
1316. So
1317. ST1: so
1318.
1319. SP1: not too much stuff *I guess∆-->*

1320. ST1: yeah all the materials are ready to to show them. Do you
1321. want to do it like in uh.
1322. SP1: no) uh no I don't feel ***like*** doing it the next week the week
1323. after maybe

1324. ST1: should we just suggest the next week meeting.

1325. SP1: Yeah, may be will do it next week Yeah.
1326.
1327. ST1: yeah.
1328.
1329. SP1: literally it shouldn't take more time or even if there's.
1330.
1331. ST1: OK.
1332.
1333. SP1: OK.
1334.
1335. ST1: Yeah. Thank you so much.
1336.
1337. SP1: No problem.
1338.
1339. ST1: and Sorry for the crazy morning haha.
1340.
1341. SP1: hahah intercultural differences do you think we will have some intercultural conflict in that meeting.
1342.
1343. ST1: we will see hahaha
1344.
1345.

Transcript for Session two (ST1-SP 1)

1. **SP1:** Don't touch she turned them off last time I said don't turn them off

2. **ST1:** No I didn't (hahaha

3. **SP1:** hahaha) good (3.2) How are you?

4. **ST1:** good (2.1) busy printing.

5. **SP1:** busy printing uh.

6. **ST1:** yeah I am printing just the materials for the first week.

7. **SP1:** why just the first week.

8. **ST1:** Yeah but the other I'm gonna use it for the uh last uh last couples

9. of weeks.

10. **SP1:** Yeah. yeah. you would better have it. You're better to have it

11. all ready to go.

12. **ST1:** Yeah for the first week yeah.

13. **SP1:** ok.

14. **ST1:** Yeah so I'm just chicking because last time when I showed you the

15. matching activity activities, I felt that you don't uh you didn't

16. get it and you need me to explain it again (1.0) so I just uh the

17. instructions isn't clear for them what to do.

18. **SP1:** Okay (2.1) yeah it was A a week ago and B three hours of discussion.

19. **ST1:** (hahaha

20. **SP1:** hahaha) so I can't remember not getting it. But if you believe that I

21. probably didn't do much better with its complement to is it

22. translated at some point.

23. **ST1:** No

24. **SP1:** They understand complement. You seem to use the term like they

25. understand it.

26. **ST1:** yeah.

27. **SP1:** My students wouldn't have understood it but if you teach with it all

28. the time, then yeah uh check the answer for your partner um (2.1)

29. **ST1:** and this is the matching.

30. **SP1:** OK. That's right. Yes. Yes. Yes. Yes.

31. **ST1:** and then uh.

32. **SP1:** to lay down your pen, to serve uh lunch (.) to move on (.) to new

33. place (2.1) to play uh (.) to charge um (1.0) to go off France (4.6)

34. yeah. Okay, that makes sense (cause it

35. **ST1:** yeah what) about the next one (is it.

36. **SP1:** use the verb and complement to make a sentence and say it to your

37. partner (1.2) well I mean It's clear um We'll see how good the uh

38. (0.4) You might have some data on what the sentences look like.

39. **ST1:** Yeah,.

40. **SP1:** But that's the idea behind it.

41. **ST1:** um.

42. **SP1:** you know, everything I ask. I ask because it's it's like when you

43. talk about things in um When we review an article in vocab and do

44. some kind of questions, you ask uh I wonder what kind of questions

45. they ask. I wonder what kind of sentences are probably not very good.

46. So it's all reviewer type questions and then examiner ask questions

47. as well.

48. **ST1:** yeah.

49. **SP1:** but yeah,.

50. **ST1:** about the speaking say it to your (2..3) partner is down.

51. **SP1:** Well. It's not exactly what happens, though,.

52. **ST1:** no.

53. **SP1:** Because you're controlling the timing.

54. **ST1:** Yeah.

55. **SP1:** So it's kind of more like. um (3.9) It's more almost like be ready

56. to. Right. Because you say, OK, everyone's read their sentences.

57. **ST1:** um.

58. **SP1:** You have five minutes, half your sentences to your timings. Yeah. Be

59. ready to say if your partner is ready. OK. Now say your friend or

60. partner, eh? Say it.

61. **ST1:** Yeah.

62. **SP1:** Yeah, once A's and B's student A sayers. Yeah, okay. No, but yeah.

63. Soon they say your partner sentence's your partner shouldn't be

64. listening. Write them down and check anything you miss. So you're

65. kind of controlling the timing. So it's not really that I'm saying

66. it. A partner, right?

67. **ST1:** Yeah.

68. **SP1:** That's the only other thing I can think of all right.

69. **ST1:** So good clear now hear.

70. **SP1:** now help your partner complete the matching activity now uh (4.1)

71. turn answers with the answers given below (4.2) Instructions are

72. important.

73. **ST1:** um.

74. **SP1:** and they're actually almost more important for other people than they

75. are for the students.

76. **ST1:** yeah.

77. **SP1:** Because you're again controlling the activity (1.4) how many of your

78. students you think will read the constructions.

79. **ST1:** alot.

80. **SP1:** did it.

81. **ST1:** yeah.

82. **SP1:** I don't think mine did. They only listened to what I told them to do

83. anyway.

84. **ST1:** may be yeah I don't know.

85. **SP1:** So it's kind of an in-between thing. So as long as you're controlling

86. it and making sure that they get it in a right way. But then again

87. some students who will maybe read it and not listen to you

88. **ST1:** yeah. I'm going to practice it with them first in the first weeks so

89. **SP1:** Yeah. Yeah. And that's the key is to make sure that's not any

90. different and that they understand what's going on and it's easy as

91. possible.

92. **ST1:** um.

93. **SP1:** Now, help your partner complete and match and check the answeres

94. given below.

95. **ST1:** Um

96. **SP1:** Now, that's probably where I'm confused from last week so uh to lay

97. down (3.8) Is it principles (.) are these the answer thing.

98. **ST1:** yeah.

99. **SP1:** Oh, ok I see, oh I see. I see Yeah. OK. um ask your partner uh give

100. me your sentence for each verb and then we do all the sentences but why uh why is one writing a sentence and these people aren't writings a sentences.

101. **ST1:** uh they will be writing a sentence in this uh in part B because you remember.

102. **SP1:** Yeah.

103. **ST1:** This is the sheet for student A.

104. **SP1:** right right.

105. **ST1:** and there is another one for studet be.

106. **SP1:** Right. Right. Right but then uh ok (4.5) they do this maching activity. They make a sentence.

107. **ST1:** um.

108. **SP1:** They read it to their partner who writes it down.

109. **ST1:** yeah now their partner has a matching activity and have a writing uh.

110. **SP1:** activity too.

111. **ST1:** Yeah, they will (help them.

112. **SP1:** where they are) matching uh where they're writing down the sentence that they say.

113. **ST1:** Here.

114. **SP1:** Where are they writing down the sentence that they hear.

115. **ST1:** they wouldn't write it Should they write it?

116. **SP1:** Otherwise, what's the point of saying it just is the point of saying that just to have them say it or (is the point.

117. **ST1:** is just yeah) to have them saying, to speak Do I need to add something?

118. **SP1:** Well, I can't. I remember the reason for the saying and I think this came out of what our meeting with with Adam.

119. **ST1:** um.

120. **SP1:** That it was uneven uh usage.

121. **ST1:** Yeah.

122. **SP1:** Right.

123. **ST1:** um

124. **SP1:** And there was being productive a level that we ended up measuring, but we didn't really have them do a lot of productive speaking or anything. Right.

125. **ST1:** yeah.

126. **SP1:** So why would they have ever used it uh (3.2) I always wonder about saying it to your partner (2.1.) Without them doing something with it.

127. **ST1:** Um

128. **SP1:** (3...5) but to have them write it down as well.

129. **ST1:** uh.

130. **SP1:** What's (0.6)uh OK, look, I make a sentence uh (3.1) lay down your pen.

131. **ST1:** ok.

132. **SP1:** and I make a sentence (2.4) the teacher told me to lay down my pen.

133. **ST1:** um.

134. **SP1:** and I say that to you.

135. **ST1:** uh.

136. **SP1:** What are you doing with that sentence?

137. **ST1:** I'll say to you like uh this is another example (3.2) that's what I thought about I don't know

138. **SP1:** well (.) I'm still uh your student years.

139. **ST1:** um.

140. **SP1:** I'm kind of bored and I don't know why we're doing this all right.

141. **ST1:** ok.

142. **SP1:** Still they say your sentence sayers the teacher tell me to lay down my pencel.

143. **ST1:** uh.

144. **SP1:** alright. Next the uh (3.4) I will serve lunch at 4:00.

145. **ST1:** Mm hmm.

146. **SP1:** Next It is it's (kind of.

147. **ST1:** it's boring I know.

148. **ST1:** Not. No, no, that's not the problem It's hmm enough

149. **ST1:** Okay. Should we add some dictation?

150. **SP1:** Well, that's kind of what I thought was gonna happen. Maybe (.) I might haven't said that Right.

151. **ST1:** hmm

152. **SP1:** And all that. But I kind of thought there was something going on back and forth.

153. **ST1:** So).

154. **SP1:** Now) isn't your dictation at this stage, though?

155. **ST1:** No that is all uh I don't know

156. **SP1:** just read and nobody does anything.

157. **ST1:** yeah.

158. **SP1:** Now, it does it need to be dictation (1.0) maybe.

159. **ST1:** hmm.

160. **SP1:** Does it need to be (4.7) hmm but it needs to be kind of something that gets them (2.1) interacting. Now, although this is supposed to be pushed output. Right.

161. **ST1:** yeah.

162. **SP1:** So they're just speaking and pushing the output. So maybe that's fine maybe that's enough, but it would be kind of nice (2.8) if somehow we had the students acknowledging or the partner, acknowledging the fact that they actually listen.

163. **ST1:** yeah.

164. **SP1:** Because the idea was pushed output.

165. **ST1:** hmm.

166. **SP1:** And this was getting to push the output and this was getting pushed the output again.

167. **ST1:** yeah.

168. **SP1:** But with a better sentence.

169. **ST1:** So maybe the third section. So this is to be uh add a third section.

170. **SP1:** yeah.

171. **ST1:** and asking them to complete the sentences which is in here in dictation section

172. **SP1:** Even if you just fill in the blanks,.

173. **ST1:** yeah.

174. **SP1:** Where I say it already clearly that they lay down his principles in opening speech you know And you've just.

175. **ST1:** hmm.

176. **SP1:** You've just done this and this.

177. **ST1:** oh.

178. **SP1:** You know what I mean? I don't even know if it has to be full dictation. That's a long.

179. **ST1:** Yeah.

180. **SP1:** For dedication with with non-native speakers took forever.

181. **ST1:** So (just uh.

182. **SP1:** even if these were sort of random order.

183. **ST1:** Yeah.

184. **SP1:** And they have to listen for oh here already laid down his principles in opening speech.

185. **ST1:** hmm.

186. **SP1:** Or even could be uh this one sounds like a better way to do it, but it also could be the other way around. with that take it out.

187. **ST1:** But if I'm uh (2.1) if I did that, I have to (2.1) be just (3.5) do it for all of them, right? Like if I did it for the verb and the complement.

188. **SP1:** hmm.

189. **ST1:** do I need to do it for all of them, or should I change it in another way?

190. **SP1:** Well (6.9) it would probably have to be for all of them you wanna everything to be the same.

191. **ST1:** yeah.

192. **SP1:** Now (3.1) the question is timing and value.

193. **ST1:** Okay, for the timing they uh all they have this activity,.

194. **SP1:** Right for how long.

195. **ST1:** They don't have any other activities for uh and they have two hours to be with them.

196. **SP1:** Okay.

197. **ST1:** So I can manage to get more time if I need but if you think about it, they will do the matching plus say.

198. **SP1:** yeah.

199. **ST1:** In 10 minutes or less.

200. **SP1:** yeah 10 minutes yeah.

201. **ST1:** yeah and then they will do making the sentences, let's say 20 minutes.

202. **SP1:** Yeah.

203. **ST1:** This is 30.

204. **SP1:** yeah.

205. **ST1:** and here is thirty again .

206. **SP1:** Because (they.

207. **ST1:** they) will do it again for the other patner.

208. **SP1:** so 10 minutes here.

209. **ST1:** And 10 minutes here and 20 here.

210. **SP1:** Why is that 20, though? Because.

211. **ST1:** for making uh.

212. **SP1:** but The sentences are already made.

213. **ST1:** let's say fifteen If it's fifteen, I don't know because I think students will take time.

214. **SP1:** well I don't really understand this activity (2.5) aren't they just reading sentences now

215. **ST1:** it is uh because the other partner will have to (4.3) oh, ok. Listen to it. So it's not fifteen but the other body, but the other partner will make a sentence.

216. **SP1:** Yeah.

217. **ST1:** So it's the same time (3.6) happening at the same time, where is the other paper.

218. **SP1:** give me a student B.

219. **ST1:** here.

220. **SP1:** alright (5.1) ok STUDENT B I do uh we do our matching. Okay.

221. **ST1:** Yeah.

222. **SP1:** and the ten minutes went by.

223. **ST1:** Yeah.

224. **SP1:** How do we check our answers?

225. **ST1:** You will say it, to your partner so number one is D. Number two is lay down your pen. Number three is serve lunch.

226. **SP1:** yeah OK. So we checked it.

227. **ST1:** Yeah.

228. **SP1:** And then I.

229. **ST1:** Go to the next one. use the verb and its complement in question

230. one to make a sentence the , so I'm going gonna make the sentence.

231. **SP1:** yeah.

232. **ST1:** I'm gonna say it to you and then I'll say the example to me

233. (1.9) It's at the same time (3.0)

234. **SP1:** Yeah, but why isn't this one and one (2.3)But why isn't student

235. Bes? Why isn't this part one?

236. **ST1:** Because I need to help or because I want them to speak to their

237. partner about it (2.1) doing the activities with them. What do you

238. mean do you (mean like

239. **SP1:** I mean that) I mean that.

240. **ST1:** oh That's what will save time if I do the matching first for

241. both of them and then doing (2.1) But we didn't think about that.

242. **SP1:** Oh, I. I must have thought about it in my head, though, kind of.

243. **ST1:** oh.

244. **SP1:** Like this is if the idea is that we probably didn't say it. We

probably didn't do it.

ST1: hmm.

SP1: But that, I guess this is kind of the way I assumed or uh

until I've seen it so my idea would be that this would be one.

ST1: For all of them.

SP1: Yeah and probably this would be uh (two.

ST1: two)

SP1: To check.

ST1: Yeah.

SP1: Three would be uh

ST1: the Sentences.

SP1: Sentences uh I don't know (.) see now I'm a little confused.

ST1: For both of them or.

SP1: No, I don't know uh writing sentences time would be three for

everybody.

ST1: hmm.

SP1: Saying it would be theoretically four.

ST1: OK.

SP1: Right.

ST1: yeah

SP1: And then.

SP1: What happened here again (haha.

ST1: hahaha) it is the reading saying it reading the uh examples

(3.2) should we take them out

SP1: I think oh.

ST1: This is saying it yet.

SP1: I know I know hmm Again and again and again haha.

ST1: hahaha.

273. **SP1:** (4.7) it seems like this should be before the make your own

274. sentences.

275. **ST1:** Before

276. **SP1:** Because it's uh it's like a progression of easiness. If you

277. think a PPP kind of idea.

278. **ST1:** hmm

279. **SP1:** this would be the product uh I mean this would be a

280. presentation.

281. **ST1:** hmm.

282. **SP1:** This would be the practice. And this would be the production.

283. **ST1:** Production ok.

284. **SP1:** you know where you do things on your own.

285. **ST1:** ok.

286. **SP1:** I mean, it doesn't have to be obviously the PPP mode, but

287. that's the idea behind it from easier to harder.

288. **ST1:** hmm.

289. **SP1:** Learning the words, using the words with as much support as you

290. get and then using the words with less (1.0).

291. **ST1:** Yes.

292. **SP1:** Support.

293. **ST1:** So uh so number three is gonna to be the saying number four uh

294. is still confused now, when is the dictation part.

295. **SP1:** Well, I don't know if there is a dictation part or not (.)
296. I don’t know. hhh (0.6) how is this going to work? now uh
297. theoretically it is pushed output, right?
298. St1: yeah
299. Sp1: but the teacher in me has a hard time uh when someone is
300. saying please stop writing and lay down your ben,
301. St1: um
302. Sp1: alright (1.5) next most hotels don’t serve lunch
303. after six
304. St1: yeah
305. Sp1: you know if students don’t really get things and they
306. don’t really have a good idea around it they are not gonna

307. make very nice sentences
308. S1: no
309. Sp1: so we want it to be sure that everyone is pushing with
310. enough contents
311. St1: yeah

312. SP1 because that will be reading aloud.

313. **ST1:** wouldn't be speaking.

314. **SP1:** Yeah.

315. **ST1:** Should we just take it out and just make it as a dictation? And

316. it's going to be read aloud and then there will be production

317. (which is

318. **SP1:** Well I think) the idea out of this before was that we weren't

319. sure what kind of production gonna be if they're making their own

320. sentences.

321. **ST1:** hmm.

322. **SP1:** It literally could be served salad served with salad. Now, you

323. know, if students don't really get things that they don't really

324. have a good idea around it, they're not going to make very nice

325. sentences.

326. **ST1:** no.

327. **SP1:** which is kind of the idea.

328. **SP1:** Yeah. So we wanted to get back to that. Everybody is pushing

329. with enough Context and what not.

330. **ST1:** hmm.

331. **SP1:** now, if If this turns into like a mini kind of closed gap idea

332. instead of this, is that bad, is are we losing something important

333. by taking this out

334. **ST1:** it could Be making sentences in number three, which is uh no I

335. don't think

336. **SP1:** Now, i think the idea behind it was we wanted them to be

337. saying.

338. **ST1:** Reading it,.

339. **SP1:** Yeah, reading it which is fine, but I think we also wanted to

340. have like a little activity where they were producing it on their

341. own, but.

342. **ST1:** but we were not sure that they would produce it in enough

343. context. They will say, like he lay down in his bed.

344. **SP1:** And that's literally just enough

345. **ST1:** Yeah.

346. **SP1:** and they could be done he charged him with theft. He went off

347. uh probably he go off to France. that is what's going to be said.

348. **ST1:** hmm can we give them clues for the context? But then it's not

349. gonna be free production

350. **SP1:** What it could be. You could do rearrange these sentences. You

351. know what I mean

352. **ST1:** what do you mean (.) rearrange the sentences oh OK.

353. **SP1:** or reask them.

354. **ST1:** but still it is written it is not spoke.

355. **SP1:** Yeah but then they say it let me speak it,.

356. **ST1:** Say it to their partner.

357. **SP1:** as a uh fill in the gap activity (.) I just think that

358. want. I am uh (33.7) part of my problem with students is I think

359. they're all lazy and they don't care.

360. **ST1:** hmm.

361. **SP1:** But as a teacher, you want them to do the activity properly

362. because you hope think it's going to make them learn.

363. **ST1:** hmm.

364. **SP1:** Now, when we're doing pedagogical research, obviously we want

365. to do the same thing. Plus, we have the answer they are being a

366. researcher on top of it where we think they're lazy and we'll do

367. your same.

368. **ST1:** Hmm

369. **SP1:** But we really really want them to do it properly. Right.

370. **ST1:** yeah.

371. **SP1:** So because if you're just the teachings of what doesn't do the

372. activity very well, you like oh That's their loss. But as a

373. researcher, it's kind of your loss at the same time.

374. **ST1:** yeah.

375. **SP1:** Which kind of sounds bad now. I just see it as the person

376. saying, please stop writing out your pen. Most hotels won't serve

377. lunch after 6:00. She stayed for a few weeks before moving on to a

378. new. We know sort of interaction with no information gap with no

379. reason for communicating. I don't see any meaningful (.) What if.

380. **ST1:** (11.2)

381. **SP1:** What if it look like (2.0) What if it look like (2.1) are we

382. losing something? Is there some number of saying that we're not

383. getting by reducing this is this.

384. **ST1:** this is the part that we want them to do it.

385. **SP1:** Yeah, but if we uh do we have a number or an idea in our head

386. that we're now losing because because we've taken it away like uh

did we come up with (.) OK. Because we'll do this this time to do

this this time and do this this time does it (4.2) What if it was

the student B was one side was this is their answer key? For

everybody else, for the uh for the A person OK.

ST1: hmm.

SP1: and So basically activities are the same. And you've got over

here is what we've had as in answers to matching And then down

here, answers to matching and sentence rearrange. reorder.

ST1: hmm.

SP1: And then on the other side, it's still student A I MEAN,

student B their worksheet (6.2) and here they have their matching

activity. Right.

ST1: yeah.

SP1: This is like this. And then they've got their sentence and

reorder.

ST1: Ok

SP1: Where they go (3.2) here every one of them has broken into to

uh fuor does it make sense.

ST1: Yeah

SP1: But you want to always separate these ones, two, three, four so

you've alwyas separated the uh the verbs and and the principal uh

their complements.

ST1: hmm.

SP1: And you've done before and after you have something.

ST1: yeah.

SP1: If you could figure out the grammatical terms, what those are

called, that would probably be better if you've got it.

ST1: Ok

SP1: so you have 1, 2, 3, 4, things re-ordered down here, they rewrite it. They write it and then they say it afterwards. And the other person over here.

ST1: Will check it.

SP1: No, no, no. Say it again. Do it again. Yeah, that's right. That kind of activity.

ST1: hmm.

SP1: Now we've got interaction and we're checking to make sure things are correct. You know

ST1: Yeah,.

SP1: And it's very controlled and it's pushed output without any thought.

ST1: ok.

SP1: Does that uh I just wonder about the value of this one.

ST1: hmm.

SP1: Now, my question is because you know this better than I do. And I don't know if I'm giving you advice. It takes away something that we thought. If we're stepping backwards, you know what I mean?

ST1: We just thought about this because we need them to speak.

SP1: That's right.

ST1: But can you make it as a third one because we need to speak?

SP1: You want them to make uh you want to make their own sentences.

ST1: yeah.

SP1: if you think if you think they can and will. So you have a

progression order here in some side. It's matching and it's kind of

like I said, checking matching sentence re-order, I think when we

first thought of this, there was absolutely no speaking and then

checking reorder. And here's him speaking.

ST1: hmm.

SP1: and then own sentences.

ST1: hmm.

SP1: and then construction what happened here though.

ST1: say it to their partner or makng sentences

SP1: ok so what if, what if, what if when I did my research I

actually use B4 paper, the bigger one. So I had everything on the

same page

ST1: hmm.

SP1: and then I folded it, I didn't even see up four pages or many

pages rather than it doesn't look like. One, two, three, four. I

don't know how that would work, but I found this size page difficult

to work with.

ST1: yeah.

SP1: Although with younger people, their eyes are fine and they can

deal with the small print.

ST1: yeah.

SP1: If you put it another activity on this, I can't see it. But I

used a bigger paper and even even the A3 which is double uh And

then I had four pages that way that worked well. Sometimes I did

even photos like one, two, three, four. It was easier to work that

way for me. I don't know if that's a possibility for you, but

that's what I did and that worked for me.

ST1: yeah.

SP1: What about the third? So one, two, three things. And there's always a back and forth. There's always a B time, and then there's a back and forth what if even this last part is say to your partner and your partner, listen to your sentence laid down and you just check off the ones they used.

ST1: what do you mean check what

SP1: so uh ok so this this matches this. This matches this. And then the sentence writing (4.2) yeah, that's right. Yeah, sounds right in here. One, two. OK.

ST1: yeah.

SP1: And you tell them do it in random order or something. Write the sentences in random or not. Not not random order like this random order of using the verbs or use use verbs in random order or use using new complement is probably the best thing to do. Right.

ST1: yeah.

SP1: Because otherwise if you and you make them use the same complements. That even I'm going to make the same sentences again

ST1: I wasn't thinking about this thing.

SP1: So use the verbs. In random order with a new complement right.

ST1: hmm.

SP1: And then they write it down and write it down and then over here the answer key. They've got laid down they've got to serve And they just listen and you say your sentence (2.3) charge him with murder (1.7) that man was charged with murder.

ST1: OK.

492. **SP1:** yeah. Yeah. You used all six. Good. Good.

493. **ST1:** yeah.

494. **SP1:** So there's something.

495. **ST1:** yeah something going out with them.

496. **SP1:** there is interaction and kind of uh.

497. **ST1:** So it's just check if uh.

498. **SP1:** Once they've used it.

499. **ST1:** Yeah.

500. **SP1:** Yeah. Oh yeah you used all six it's good. Perfect. Oh you

501. forgot what. Where's your sense. Oh no I said all this one. OK,

502. good so then there's some sort of internal checking process about

503. the whole thing as well does that make sense?

504. **ST1:** Yes.

505. **SP1:** Does that make it sound like an activity that would work?

506. **ST1:** I was thinking about this part. It will be difficult for the

507. students but I thought that they will get used to it and it will

508. be reading aloud I dont know.

509. **SP1:** So they got in (each time.

510. **ST1:** but now I think it is better Yeah.

511. **SP1:** yeah I agree with you that this is a good idea. I just need

512. something to do and a little bit more structure to it. I think

513. that's a bit wide open.

514. **ST1:** hmm.

515. **SP1:** If if you give them so If we go to that kind of four page a

516. four page on the A3 or whatever, that'll give more space. And if you

517. give the person more space to write, they write more.

518. **ST1:** hmm

519. **SP1:** If you give them this much, they only write this much.

520. **ST1:** hmm.

521. **SP1:** So to give a bit more space to work with. They tend to use it

522. better as well. I think this works kind of as a back and forth. We

523. work together. We kind of have a.

524. **ST1:** Yeah,.

525. **SP1:** Or even before it, like as if uh is it B three or B four. It's

526. kind of a bigger sized it is like this big. It's not uh A three (is

527. like abit

528. **ST1:** Yeah.

529. **SP1:** but B3 or whatever it is, it's like this big.

530. **ST1:** hmm.

531. **SP1:** and if you you print it on A fours and it there is a function

532. that makes A fours go on to two B 3s or something.

533. **ST1:** Hmm

534. **SP1:** It's like literally some buttons you press on the machine and

535. then you get small A3, small A3 (.) no sorry small A4, small A4,

536. small A4 and for students they can handle the size of their text.

537. **ST1:** Yeah,.

538. **SP1:** But my eyes no longer working.

539. **ST1:** oh ok.

540. **SP1:** I uh yesterday I believe I've decided that my phone was not

541. getting smaller, that my eyes were getting worse and I had to do

542. something about it or I'll just buy a bigger phone.

543. **ST1:** Yeah, hahaha.

544. **SP1:** hahaha (2.1) so

545. **ST1:** Something to work on.

546. **SP1:** . Yes.

547. **ST1:** on the flight haha.

548. **SP1:** on the flight yea.

549. **ST1:** hahaha.

550. **SP1:** .How long is your flight by the way.

551. **ST1:** five hours.

552. **SP1:** five hours not too long.

553. **ST1:** Yeah. Yeah.

554. **SP1:** So do you understand what I'm doing?

555. **ST1:** yeah.

556. **SP1:** so I think that's. So they said it. They work with it once

557. they've got the means (.) Well, the meanings should be fair to.

558. You've taught them the meetings.

559. **ST1:** Yeah.

560. **SP1:** They're working with the compliments to get some more of the

561. meaning. They're working with the sentences and they say it once a

562. minimum of once they say it twice and then yeah I was going to say

563. maybe you want to have recorded it but I don't think we're ready

564. for that. Maybe later when we get smaller, the next round of

565. studies.

566. **ST1:** recording would be impossible.

567. **SP1:** Right now yeah. So maybe in the next round of the study this is

568. something you should also be writing notes about What am I doing

569. next? What are we gonna do next?

570. **ST1:** yeah.

571. **SP1:** Take. What do we do next is what kind of interaction goes on?

You know, theoretically. Right. But, you know, when you come back,

you want to come back, say this worked. Hopefully this worked

perfectly.

ST1: hmm.

SP1: But I would love to know more about this or this work

perfectly, but or this work this way. But if I if we'd have tried it

this way, it might have been better or this worked perfectly. But.

ST1: We change it.

SP1: If we change this or we laid this on top of it or and plus the

results will push the next study as well, which is good.

ST1: How many students do you think is like uh the good number

SP1: Well, I would want thirty in each group.

ST1: hmm.

SP1: Because we just have, you know, a minimum of 30 in each group

to start.

ST1: hmm.

SP1: Because you're going to lose students.

ST1: Yeah.

SP1: And then if we're below if I see a study below 20, it's pretty

tough. You know, it's uh groups with below 20. That sounds like a

pretty small thing.

ST1: if it is more then thirty it will be good right.

SP1: that's fine if you can handle the numbers in hand. I mean,

that was me too, right? When I started it, I thought I was going to

have like three groups doing it or something like that. But it was

597. some. And I decided, no, I'm going to do it for every single class

598. I teach. Yes. I was bored of watching that video every week. But.

599. Once I had it running, it wasn't hard to do it with another class.

600. **ST1:** um.

601. **SP1:** Because I knew what I was doing. In fact, it was by week you

602. know by Thursday of the week.

603. **ST1:** um.

604. **SP1:** I knew how to run the timing so well that it was I would

605. actually finish it earlier because I was kind of thinking I was

606. better at handing out papers, you know, little things like that.

607. It's no harder to do it again and again and again that it's just

608. being organized the first uh.

609. **ST1:** yeah the first class.

610. **SP1:** yeah.

611. **ST1:** So are they uh because I'm thinking about getting some

612. students. I'm gonna get the science students.

613. **SP1:** Right.

614. **ST1:** But I'm (thinking.

615. **SP1:** and that's) a good thing, right.

616. **ST1:** Yeah, I'm (thinking of.

617. **SP1:** in my university that was a bad thing.

618. **ST1:** Really?

619. **SP1:** Yeah.

620. **ST1:** we have the Art student.

621. **SP1:** they have no interest in English if they're science students.

622. **ST1:** We have that for the Arts that's what I'm (saying should I.

623. **SP1:** so so your) science students wanna leave. Right.

624. **ST1:** Yeah.

625. **SP1:** Your students want to leave and study science outside of Saudi

626. right.

627. **ST1:** yeah.

628. **SP1:** But with our science in Japan they can do science very well in

629. Japan. In Japanese so they didn 't need English uh

630. **ST1:** I'm thinking about getting also another group from the art and

631. that will add numbers.

632. **SP1:** But make sure that they're not just uh In in one of the groups.

633. **ST1:** what do you mean

634. **SP1:** Well, you don't (want them.

635. **ST1:** no no no) all the groups will be two groups.

636. **SP1:** Yeah.

637. **ST1:** two groups, one in science, one in Arts.

638. **SP1:** That's fine if you can say uh and especially if your pre-test,

639. your vocabulary pre-test shows a difference (in the

640. **ST1:** yeah the VLT.

641. **SP1:** Two and three.

642. **ST1:** Yeah.

643. **SP1:** Yeah. that will be enough.

644. **ST1:** Yeah

645. **SP1:** Especially if you see a difference in the arts and the science

646. in there. You can say look, these are low intermediates and

647. slightly higher low intermediates or something like that. And then

648. and then you can especially if you know your science are too

649. heterogeneous. Here's another analysis about vocabulary, knowledge

versus learning.

ST1: um.

SP1: So that's an analysis you could probably do. And if you've forced kind of the students to be a little bit different, that's a nice analysis.

ST1: yeah.

SP1: But if all the marks are the same and they've already between 25 and 30 on those tests, then there's not much. But if you've got people getting a two K done . And then people get three K done, that could work as well.

ST1: yeah.

SP1: So a nice spread would work.

ST1: um what about the statistics, when I get back for different analysis I'm thinking about R.

SP1: Why.

ST1: There are different variables here You think so.

SP1: Do I have to have the same argument that I had with Diana with R and you.

ST1: I'm I'm quite okay with using anything.

SP1: hahah I mean, at the end of the day, I don't care how you do it (.) I only care that you spend too long going down on R for learning.

ST1: yeah.

SP1: If it allows you to do something that that SPSS doesn't, then all the more power to. Like I took an art course in the summer to. I

675. think it's something good. But I took an R course for four weeks. It

676. was expensive

677. and I still don't think I could do the analysis that you want to do

678. that I could do at SPSS.

679. **ST1:** hmm.

680. **SP1:** Like it's uh part of the problem for me with R uh SPSS is I'm a

681. very I think I'm a very visual person. So SPSS allows me to see my

682. data kind of. And then, you know, click on the data. And I'm very I

683. think I want this to do this. Yes. Okay. I understand. Because it's

684. going into little boxes that allows me to understand the data a bit

685. better.

686. **ST1:** um.

687. **SP1:** Plus, in the videos, all kind of help as well. With with R you

688. just telling it to do things in that kind of gets lost in my mind a bit.

689. **ST1:** But isn't that the best option now in the field

690. **SP1:** Only if you're doing something that SPSS can't do.

691. **ST1:** ok.

692. **SP1:** what are you doing that SPSS can't do?

693. **ST1:** It's just uh no nothing.

694. **SP1:** I don't think so. Not yet. Now, mixed effects modelling. Which

695. I don't think we've really had the need for at this point they need

696. just go over to R because SPSS can't handle it yet, but.

697. **ST1:** um.

698. **SP1:** but right now, if we can get it and a lot of it and to say the

699. truth.

700. **ST1:** Do you think that SPSS will be enough because we will have the

701. different meanings, scores and then we will have (the pre.

702. **SP1:** for the purposes of a PhD, the simpler stats are not that big a

703. problem. Now, when it comes to publishing, then people start to get

704. a little bit annoyed about, say, asking for more complicated

705. things.

706. **ST1:** um.

707. **SP1:** Because because if the internal logic of what you presented

708. with your statistics, is it Internal logical to anpther reviewer

709. and uh you maybe could have done this statistic when you're like,

710. no, look, I've got all these statistics already done. then it's

711. fine now I know what you're saying with SPSS and multiple means,.

712. **ST1:** um.

713. **SP1:** But that's just more complicated and things like that.

714. **ST1:** And don't forget about the single words and phrasal verbs and.

715. **ST1:** Those are just layers of factors that you put onto it. Now, if

716. you find that you've got to the level that it doesn't work then

717. will go towards R.

718. **ST1:** OK.

719. **SP1:** Simply that it's shutting down for R means a month of you going

720. away and not learning how to use R before you actually do your

721. statistics.

722. **ST1:** that is what I was thinking about.

723. **SP1:** but. I think you could be doing your statistics without the

724. learning part of R. At the same time, is it because you've done

725. your learning with SPSS Well. But I don't think you're I don't

think that it add uh wait until it can't do what you want it to do

at this point, I think it can do what you wanted to do.

ST1: In SPSS.

SP1: Yes and I told you ofthat book last time right uh the Larssen

Hall book.

ST1: um.

SP1: Doing statistics for second language research.

ST1: yeah.

SP1: . And she has a bit of R in there as well.

ST1: yeah.

SP1: So see what she's doing with art in there, because I didn't

really look at that book in enough detail.

ST1: um.

SP1: What is she doing with R That makes. Makes it worthwhile to do, R.

ST1: yeah.

SP1: because that book was set up around SPSS, I believe, and still

is. But what is she doing with R, that makes it necessary. And you

couldn't use both. You don't have to go all one way or all the

other way.

ST1: yeah.

SP1: If there is something to get into. It's fine.

ST1: it's just because of the learning stage.

SP1: at point this why uh You know, your statistics are going to be

complicated enough without having to write the code to do it.

ST1: yeah.

SP1: And I think there's probably a lot more resources out there for

752. you to get through the SPSS side of it and study you. If you start

753. off really basic and and start doing everything with multiple,

754. multiple, multiple comparisons, which isn't always the best way to

755. do things because you suppose, you know to feed that into your

756. analysis just to get an idea what's being out there and then you

757. start to get into more complicated ANOVA's and things like that.

758. And that's fine. But if you're just literally doing multiple T

759. tests at the beginning to see where it goes because the significant

760. differences or the differences you see Will be the same with your uh

761. It's more complicated ANOVAs or MANOVA or ANKOVA it is probably,

762. but the T test will sort of point in the right direction to start with.

763. **ST1:** yeah.

764. **SP1:** And even the descriptive statistics in Excel. Very robust. It

765. means and modes and standard deviations. We're going to be able to

766. look at that. Statistics uh the descriptive statistics without any

767. actually inferential statistics on there.

768. **ST1:** um.

769. **SP1:** And we're gonna know that these are the same scores on both

770. basically right up there, a little bit different. But the standard

771. deviation is large enough that they're not the same.

772. **ST1:** um.

773. **SP1:** Or they are the same or they're not the same. So we're gonna be

774. able to tell basically , you know, from from a nice table of

775. descriptive statistics, what went on then. The inferential list uh

776. statistics will support that.

777. **ST1:** um.

778. **SP1:** Very, very, very rarely. And now this is a bit of uhmore of a

779. psycholinguistics thing is when it's a little bit more complicated,

780. when you're trying to find out what's going on, because they have

781. so many different factors, you know like the language proficiency,

782. their L1 and all these factors where they don't really know exactly

783. what's happening yet. But our pedagogical studies are pretty

784. straightforward.

785. **ST1:** Yeah

786. **SP1:** We don't do this. Then we do it and we see what doing it did.

787. **ST1:** yeah.

788. **SP1:** and the only thing we have is we have multiple strands of this.

789. We have different tests and we have different items.

790. **ST1:** yeah.

791. **SP1:** and you can separate those out and analyze them one by one or

792. hopefully maybe down the road we get a more complicated statistic

793. this time to get everything together, but it still may give you

794. almost the same numbers.

795. **ST1:** yeah.

796. **SP1:** At the end of the day so right from now, until we find a

797. problem with R or excuse me, a problem with SPSS, let's stick to.

798. **ST1:** SPSS.

799. **SP1:** SPSS and move forward with that. I mean, SPSS is being used by

800. many, many, many, many, many, many researchers around the world.

801. **ST1:** Yeah.

802. **SP1:** and I think for some of the people, what R does allows them uh

803. especially the psycholinguistics people but I don't think it's that

804. important for us right now.

805. **ST1:** Yeah. Do you remember the software that you told me about for

806. the pre- and post-test and for the shading.

807. **SP1:** Yeah

808. **ST1:** do you remember the name of the software.

809. **SP1:** Yeah. Did I ever tell you that it was the software was called

810. or is called Remark (2.1) now the thing with that is (4.1) the

811. problem with that is you need to set it up kind of with their

812. things in mind um it's not a very cheap software either.

813. **ST1:** How much are you talking about?

814. **SP1:** um (4.8).

815. **ST1:** I'm going to check it out.

816. **SP1:** If you just look up remark software, you kind of need to build

817. it. You need to build uh.

818. **ST1:** answeres you mean.

819. **SP1:** .you need to develop your answer sheets and stuff, ready to

820. scan with it?

821. **ST1:** Yeah I have it already.

822. **SP1:** , ho, ho, ho, ho, ho haha That's a thousand pounds.

823. **ST1:** oh hahah.

824. **SP1:** it's amazing is that much

825. **ST1:** For how long for one year,.

826. **SP1:** it includes uh one year of technical support and maintenance.

827. **ST1:** Wow that's too much.

828. **SP1:** Yeah, I know. Now you don't have that many students.

829. **ST1:** yeah.

830. **SP1:** . So I had I had, you know, like ten tests,.

831. **ST1:** um.

832. **SP1:** Almost 90 items with the survey stuff plus VLT plus post-test

833. plus pre-test.

834. **ST1:** all of that.

835. **SP1:** yeah and I had four hundred people so times all of those fifty

836. things hundred eighty.

837. **ST1:** yeah.

838. **SP1:** So I had it uh for me It really made sense for you (.) It's

839. (2.3) ok set it up so it's still you can still do the shading

840. things because that makes life a lot more easily so it looks like.

841. **ST1:** looks ood yeah.

842. **SP1:** It even looks like what what you did with the VLT basically

843. where you can see down A, B, C and D and there's circles or

844. whatever and you could just go through A B C actually, what you are

845. doing in to going uh

846. **ST1:** In circles.

847. **SP1:** in the circles and a shade and they are shaded.

848. **ST1:** yeah

849. **SP1:** You probably just go 1, 2, 3, 4, 1, 2, 3, 4,7.

850. **ST1:** Hmm

851. **SP1:** Then you do a search and replace A for one piece or two.

852. **ST1:** yeah.

853. **SP1:** And then you've got the item analysis sameway (.) and you've

854. got and you can do that each week. Right.

855. **ST1:** yeah.

856. **SP1:** Because at home, what are you doing? You're not doing anything.

857. **ST1:** so yeah.

858. **SP1:** so you can just keep on track of it. You've got maybe (3.1) 100

859. students total propably or whatever

860. **ST1:** Maybe more.

861. **SP1:** so yeah (.) Is it a pain? Yes. But is it working?

862. **ST1:** it's okay It's okay. i was thinking it is cheaper but one

863. thousand it is too much hahah I'm going to myself.

864. **SP1:** Yeah. And you know what (.) I've done it for other studies.

865. It's not that hard. I do it for. We had 20 questions times. One

866. hundred and twenty students each week for language development

867. module.

868. **ST1:** yeah.

869. **SP1:** And I set it up so that it was a nice bar ABC so I could see it

870. there. And in two hours I did 120 people for that test just doing this

871. **ST1:** oh really.

872. **SP1:** That's just the main lesson though

873. **ST1:** ok uh I mean I enter it in Excel or uh let's say in Excel

874. first.

875. **SP1:** Yeah,.

876. **ST1:** I will do it. I wouldn't do it as the same as before the A B C

877. answeres I would do it either one or zero.

878. **SP1:** no A B C is first.

879. **ST1:** Oh, okay.

880. **SP1:** Because you still want that data anyway.

881. **ST1:** OK.

882. **SP1:** Take a look. Because later. Well, it's no harder. It's easier

883. to go on A B C and then have Excel to mark it.

884. **ST1:** hmm.

885. **SP1:** Because you just do it if sentence

886. **SP1:** If (.) if cell X equals A then one. If it doesn't equal that

887. then (zero.

888. **ST1:** Zero)

889. **SP1:** then you have it marked my automatically.

890. **ST1:** yeah but I I will have another sheet for all the answers they

891. gave me you mean

892. **SP1:** Yeah

893. **ST1:** save first with that with the answers (and do it with.

894. **SP1:** there is no reason pay to do it one zeroes because later on you

895. might need that data anyway. So.

896. **ST1:** hmm.

897. **SP1:** Let excel. Mark it.

898. **ST1:** Yeah ok.

899. **SP1:** So do the do it like A B C all the way through.

900. **ST1:** yeah.

901. **SP1:** And then have one zeros afterwards and literarily it just a

902. drag and drop. If you've done it before.

903. **ST1:** Yeah.

904. **SP1:** For the piloting.

905. **ST1:** for the piloting yeah.

906. **SP1:** Yeah. So it's really easy to do and if you've got that data in

907. there you can even start to look for bad items and something's

908. wrong or something like that.

909. **ST1:** hmm.

910. **SP1:** And otherwise you have to go back and do it maybe I would

911. always recommend everyone do it that way anyway.

912. **ST1:** yeah.

913. **SP1:** Why bother. Otherwise you have to think about marking it and

914. then you have to think about entered and why not just ended up with

915. your brain turning off and then let Excel mark it out afterwards.

916. **ST1:** yeah that is what I'll do.

917. **SP1:** You have an answer key at the top. Yeah, what it is is the end

918. of an answer key.

919. **ST1:** yeah.

920. **SP1:** here's the answers up here.

921. **ST1:** yeah.

922. **SP1:** And then you have their answers and then you have a kind of

923. comparison. If this equals this, then one.

924. **ST1:** hmm

925. **SP1:** If it doesn't, then zero.

926. **ST1:** yeah Any other things that I should do really or uh.

927. **SP1:** Keep notes of your methodology and even start to write it up as

928. you go through it (.) as collecting data, what did you do? How long

929. did things take?

930. **ST1:** hmm.

931. **SP1:** You're not going to use all that data to that sort of

932. information. So specifically, but you're going to want to know how

933. long things took and then it'll all get boiled down to into part 1

every week. Five minutes was taken, a ten people getting settled.

Part 2 is having things out that took 5 minutes part. And then we did 10 minutes on this that we did 50 minutes on this.

ST1: yeah.

SP1: And then two hours into this, each test took approximately between 20 and 40 minutes. That kind of thing.

ST1: yeah.

SP1: And keep attendance because you're going to throw some participants out.

ST1: yeah.

ST1: that is all.

SP1: Just keep notes because otherwise when you go to write it up, you won't remember. It's really tough to do. And yet you get ahead of it, get ahead and put in the data entry and do it when you do it. You're going to be really interested to know what data entry is. Start get that VLT results in right away.

ST1: yeah.

SP1: You want to know what that looks like? You start to play with that one if you start to play with your VLT input then you'll know how to sort of every other Excel sheet will be exactly the same almost.

ST1: yeah.

SP1: So once you figure out because you've got VLT scores and pre scores and you'll have an idea what's going on and we start to build those Excel files, then your post-test ones will be just literally a copy and paste.

ST1: yeah.

961. **SP1:** So just do work as you go. Obviously collecting the best data

962. you can is important.

963. **ST1:** yeah.

964. **SP1:** How are you with the one production test?

965. **ST1:** what about it.

966. **SP1:** It's computer-based, right?

967. **ST1:** Yeah.

968. **SP1:** Is it ready to go?

969. **ST1:** Yeah I put it as we agreed on like presentation.

970. **SP1:** Right.

971. **ST1:** I'm gonna use the template.

972. **SP1:** And then there's gonna be this the recorder with the

973. headphones.

974. **ST1:** yeah.

975. **SP1:** And stuff like that. Have you tried it.

976. **ST1:** I'm going one week before to try it.

977. **SP1:** OK. And try it with all that.

978. **ST1:** Yeah.

979. **SP1:** That's the key there would be somehow having it like the files

980. names already ahead.

981. **ST1:** yeah.

982. **SP1:** And again, don't trust your students to do things right and

983. take as many possibilities out of there because it's not their

984. fault. They just will screw it up. You know, it's not that

985. important for them, but it's important for you.

986. **ST1:** So if the labs are not looking for anything, I'm gonna use

987. other devices.

988. **SP1:** Yeah, I mean, theoretically, you could. I don't know. You can

989. have tape recorders or something.

990. **ST1:** yeah yeah I 'll do it (I'll ask for

991. **SP1:** the lab should work) I mean you can literally record sound on

992. everything.

993. **ST1:** Yeah.

994. **SP1:** Yeah so sound recorders on everything here. Whoops. Well need a

995. microphone but it's on every device so you can do it all the time.

996. **ST1:** I have to go one week before to check everything but (it's

997. gonna be.

998. **SP1:** So you will start) collecting data.

999. **ST1:** twentieth of March.

1000. **SP1:** OK, so you got a nice ten days.

1001. **ST1:** Yeah so the first uh the first speaking wouldn't be before at

1002. least two weeks.

1003. **SP1:** yeah.

1004. **ST1:** It would be like after two weeks or three weeks.

1005. **SP1:** yeah.

1006. **ST1:** So I have enough time to ask them to run it.

1007. **SP1:** So you're gone uh where do you leave?

1008. **ST1:** tenth of March.

1009. **SP1:** so (3.6) and when you come back.

1010. **ST1:** in the eight of May or maybe before I finish really.

1011. **SP1:** oh ok I'll keep that in mind, though, May 8th. Let me find

1012. cause I'll be gone.

1013. **ST1:** for triple A

1014. **SP1:** Yeah, actually, I get all that we don't uh we start teaching

1015. again on May uh April 18, so be pretty busy, so May 18th.

1016. **ST1:** May 8th.

1017. **SP1:** Yeah,

1018. **ST1:** before the symposium (5.6) you will be here that week.

1019. **SP1:** I'll be around because we've stopped teaching that week.

1020. **ST1:** hmm.

1021. **SP1:** You come back, right when we start teaching.

1022. **ST1:** ok good haha

1023. **SP1:** yeah which is actually good time to come back All right so yeah

1024. **ST1:** so that 's everyting

1025. **SP1:** so Just good luck on everything. Collect, collect, collect,.

1026. **ST1:** Yeah,.

1027. **SP1:** There will be problems. Everybody has problems, but it's OK.

1028. **ST1:** yeah are you coming tonight?

1029. **SP1:** I think we're going to change something because I don't think I

1030. can drive.

1031. **ST1:** so there might be something else.

1032. **SP1:** I think there might be something else will talk about it with

1033. Benjamin to see what we are doing

1034. **ST1:** ok then will see you later.

1035. **SP1:** Ok

Transcript for Session three (ST2-SP 2)

1. **SP2:** so you haven't sent me anything.
2. **ST2:** Just no.
2. **3SP2:** Just now ok.
3. **ST2:** Because I had to finish something. and to finish some tables uh I
4. think I am lucky this this week, because I managed to do some things
5. with my work for this week, so I worked full time for this week.
6. **SP2:** all right
7. **ST2:** I managed to increase this chapter from, say, slightly
8. more than
9. 5000 to eleven thousand.
10. **SP2:** eleven thousadn word.
11. **ST2:** Yeah.
12. **SP2:** Right so.
13. **ST2:** Yeah and but honestly, I did some changes I mean uh in terms of
14. organizations of the uh
15. **SP2:** Yeah.
16. **ST2:** of the uh I mean the chapter Actually, I have some issues I wanted to
17. clarify before starting talking about uh.
18. **SP2:** Right right.
19. **ST2:** I mean uh.
20. **SP2:** this chapter.
21. **ST2:** yeah this chapter
22. **SP2:** yeah.
23. **ST2:** firstly what about the conference Dr Ali.
24. **SP2:** the confidence?
25. **ST2:** Yes. Because we.
26. **SP2:** have you heard anything for them

27. **ST2:** I mean, which one do you think is uh.

28. **SP2:** well.

29. **ST2:** is better to participate in uh which conference I mean, the Stirling

30. cycle conference or the power cycle or both of them (.) I check for

31. the fees for the Stirling cycle uh Stirling Engine Conference for the

32. students, only 200.

33. **SP2:** Yeah.

34. **ST2:** So it's OK.

35. **SP2:** I think both of the most relevant when is the Stirling.

36. **ST2:** deadline?

37. **SP2:** Conference. Yeah.

38. **ST2:** deadline for the manuscript uh for the full paper.

39. **SP2:** for the abstract. and the full paper.

40. **ST2:** For the abstract it is (already.

41. **SP2:** Right. Right. For the abstract you have already submitted it .

42. **ST2:** yeah I have submitted it and it's ended anyway.

43. **SP2:** hmm.

44. **ST2:** For the uh

45. **SP2:** full paper

46. **ST2:** full paper I think in May uh it's let me check here

47. **SP2:** Yeah.

48. **ST2:** Yeah. They have the first draft of papers twenty of May

49. **SP2:** yeah

50. **ST2:** notification of acceptence in June. And final manuscript paper is

51. twenty of July.

52. **SP2:** All right. So 20th of July. If you have been notified that your paper

53. has been accepted

54. **ST2:** Yes.

55. **SP2:** and then you need to submit the final draft twenty of july

56. **ST2:** Yeah.

57. **SP2:** Yeah so you have good time for that

58. **ST2:** for the other one. It's in this month.

59. **SP2:** yeah

60. **ST2:** Is it in the twentieth of March

61. **SP2:** Yes.

62. **ST2:** yeah

63. **SP2:** the Hippo cycle is very soon

64. **ST2:** Yeah.

65. **SP2:** Yeah.

66. **ST2:** But anyway I think I have the material for this one because with this

67. chapter.

68. **SP2:** Yeah

69. **ST2:** we can. I mean just use some of what I did in this chapter I think it

70. is

71. **SP2:** Yeah. Yeah. Yeah.

72. **ST2:** Maybe I'll need some, some more results. Which is I have to anyway.

73. **SP2:** yeah

74. **ST2:** I want to finish this chapter by the end of this week because I just

75. I still have some

76. **SP2:** anyway We'll have a look at this in a moment

77. **ST2:** Yeah. Okay. I received an invitation from the university, uh for the

78. engineering postgraduate research showcase

79. **SP2:** Yeah.

80. **ST2:** So what do you think is it

81. **SP2:** hmmm

82. **ST2:** worth to participate in or

83. **SP2:** I am not sure I have mixed uh well, I mean previously I had a PhD

84. student or two students participate in that uh Is that something

85. you're. You have to present or or just poster or

86. **ST2:** yeah I think it is mainly posters I think

87. **ST2:** posters yeah I mean, with a poster you can produce a poster uh and

88. participate if you want. I mean, as I said before, I mean, you are

89. at the stage where you don't want to distract yourself from other

90. issues. I think at this stage, your concentration is on writing your

91. thesis,rather than you know occupying yourself with other things

92. **ST2:** just uh I am wondering honestly if it is worth

93. **SP2:** Yeah,

94. **ST2:** but sometimes if it doesn't (worth then

95. **SP2:** I think) What is the I mean what what do you want to gain from that

96. one That's you know, that's what you want to ask yourself. Well how

97. is it going to benefit me?

98. **ST2:** And anothe thing I have received two times honestly an invitation

99. from one of the conferences in China to be the speaker there

100. **SP2:** hahaha

101. **ST2:** in one of their conferences

102. **SP2:** you forwarded me the email and I laughed at it hahaha

103. **ST2:** why hahah.

104. **SP2:** I mean, it's it's just spam.

105. **ST2:** oh ok.

106. **SP2:** It's just a spam

107. **ST2:** I am just asking because it is uh it is the first (time I

108. **SP2:** I receive hundreds of those every day. So it's.

ST2: So if it's worth or

SP2: no no no

ST2: if it is not then

SP2: no no no it is just a spam

ST2: ok

SP2: just an email a spam they are spamming people

ST2: ok yeah I think those uh those are the main points

SP2: yeah well mean, the conferences so we have hippo cycle conference is an opportunity

ST2: yeah

SP2: And the specialized one, which is the Sterling Sterling Engine International Conference again it is in the UK So it's another opportunity. I think that is a good chance you should go to those. What is hipo cycle, the heat engine? is it in October or September or

ST2: You mean the (conference,

SP2: the conference) itself

ST2: the conference uh the conference in in June I think

SP2: Is it June? Next next year?

ST2: This year.

SP2: The Stirling engine

ST2: oh the stirling engine is in August.

SP2: August yeahalright

ST2: it is the twenty-six or eight or twenty-nine,

SP2: allright. August 26. So the end of August. Yeah, that's that's that's fine so the twenty-six of August that is fine.

ST2: yeah

SP2: OK. Yeah, that's fine. So probably we aim to get to those both cpnference or maybe the Stirling Engine Conference is more

suitable.

ST2: do you think we have material to to participate or because

honestly it is

SP2: Yeah, I mean, but in terms of materials uh You will be

presenting the work on the design you have done so far. So

that's what you will be presenting. Basically, if you have to

write a paper it is on what is in the chapter uh in Chapter 4?

ST2: Honestly, the other advantage in the uh setting engine They
usually have like exceptions so

SP2: Yeah) they have they have I mean, all experts in sterling

engines you will find them there most of them you know compared

to the hippo cycles.

ST2: hmm

SP2: So that's because that's specialized conference. So you'll find

the experts going into uh into that conference.

ST2: honestly I checked the guys going to uh I mean the speakers of

the conference

SP2: hmm

ST2: compared to the last one

SP2: hmm

ST2: Only I think. Betshwards

SP2: Betshwards

ST2: Yeah. He is coming.

SP2: Yeah.

ST2: For other guy no I don't think so until now no

SP2: Yeah. Yeah. Yeah. But still there is time.

ST2: Yeah.

SP2: so it will be confirmed

ST2: Honestly, I would like to participate in both of them.

SP2: Yes.

168. **ST2:** If there's a chance, if you think there's enough material to
169. participate on both of them otherwise I have to focus on uh
170. **SP2:** Just one.
171. **ST2:** Yeah,
172. **SP2:** yeah. Yeah. I mean I mean, probably if you have to focus as I
173. said, I think at this stage is your thesis is a priority.
174. **ST2:** yes
175. **SP2:** Anything that comes within uh form that then it's a bonus
176. That's how I see it. Because you are. pressed with time to uh
177. complete really chapter four and chapter five that is the heart
178. of your thesis
179. **ST2:** yes
180. **SP2:** So I know you have put a lot of effort into this one So it's
181. nearly three months now on this on this chapter or maybe more
182. **ST2:** And it's the main part of the thesis
183. **SP2:** yeah
184. **ST2:** I think, for example for me for the discussion and results
185. chapter.
186. **SP2:** Yeah
187. **ST2:** it would be like short chapter. There's not too much to to do
188. in this chapter as I have placed all what I have done in uh I
189. mean in the uh Chapter 5 uh Chapter 4.
190. **SP2:** Yeah. Chapter 4 is all the design you have done and the
191. prototype that you have built,
192. **ST2:** yeah
193. **SP2:** in chapter five is expanding on your results and you have to bring in your computer model results as well.
194. **ST2:** oh
195. **SP2:** yes that is your chapter five (3.2) You have to bring in the computer model results. You have to look at some on how to compare that

to the two resultsuh the results you got from the computer model and the results you got from the testing

196. **ST2:** I mean Dr Ali in uh in the plan

197. **SP2:** yeah

198. **ST2:** we have. I mean, the modelling and the the results it should be chapter two or three I think

199. **SP2:** It should be chapter three.

200. **ST2:** Yeah.

201. **SP2:** Yeah. You have your computer model results there. But in Chapter 5,

202. **ST2:** just a comparison.

203. **SP2:** Yeah. Yeah. You have to bring some uh some

204. **ST2:** some link

205. **SP2:** yeah between the computer model and your lab work so you have you have to link those two together.

206. **ST2:** ok

207. **SP2:** yeah So what other things you have added into Chapter 4 since the last uh since the last time.

208. **ST2:** Honestly, what if you go through you will find some writing in Blue

209. **SP2:** right.

210. **ST2:** all blue

211. **SP2:** so that's what you have highlighted.

212. **ST2:** Yeah. And as well as I tried to be organized to the titles

213. **SP2:** hmm

214. **ST2:** So I make some changes, for example, here yeah. if you go up yeah So, yeah, just the next page

215. **SP2:** yeah

216. **ST2:** Yeah here I actually find myself

217. **SP2:** hmm

218. **ST2:** confused between the characteristics of the bellow.

219. **SP2:** hmm

220. **ST2:** And I did some calculations which which it should go back. So I moved up. I left this part just for critical uh characteristic for uh for the bellows

221. **SP2:** yeah

222. **ST2:** Then I take uh I mean I took all the uh I mean calculations to another part, which is which is under the other titles. I called I called it the uh the engine structure.

223. **SP2:** Right.

224. **ST2:** So I put it in what those calculation under the title of uh dimensions and the size of uh

225. **SP2:** right right

226. **ST2:** of the displacer.

227. **SP2:** Right. So you brought those all those bellow calculations under the

228. **ST2:** yeah

229. **SP2:** under the structure.

230. **ST2:** OK uh Maybe this part I am not too happy with this part for diaphragm (.) It's still (2.5) I mean, maybe needs more more effort because if it's like short and something missing.

231. **SP2:** Right. So

232. **ST2:** one of the things missing, actually. I think I need to include the equation that you have used because I'm using anyway. I have another mass

233. **SP2:** right Oh, yes (the.

234. **ST2:** so I think) I need I need to to to include that that equation

235. **SP2:** hmm

236. **ST2:** Yes. This one is like a general one.

237. **SP2:** Yes but this is this is for a desk for a diaphragm desk.

238. **ST2:** yeah

239. **SP2:** without any uh

240. **ST2:** any mass

241. **SP2:** uh concentric mass in the middle.

242. **ST2:** Yeah.

243. **SP2:** So you need to bring in an equation in which you take into account the fact of exactly what you put here.

244. **ST2:** Yes this one

245. **SP2:** the mass of the uh so it it is a load, whether it's a linear generator or whether it's another vibrating or oscillating mass supported by the diaphragm, it needs to be brought into the equation because that mass we know it affects the oscillation frequency of the system.

246. **ST2:** hmm

247. **SP2:** And we know as you increase up mass, the frequency decrease.

248. **ST2:** But the difficulty I faced for this equation, I haven't the idea of the equation I did find any uh link to to understand this equation (because

249. **SP2:** yeah I mean) if you look into uh into the oscillating frequency of a mass suspended by a spring

250. **ST2:** hmm

251. **SP2:** so if you have a mass, you have a spring with a mass. And what is the natural frequency of that mass vibrating

252. **ST2:** yeah

253. **SP2:** So what is the natural frequency? Usually we say it's the square root of, K of R

254. **ST2:** Yes.

255. **SP2:** But then if that these and here if this spring mass (.) is important, then you have to take into account the spring mass.

256. **ST2:** yeah

257. **SP2:** So it has to be the spring of that mass plus the effective mass of the spring. So we have the mass hanging from the spring, plus the mass of the spring if the spring is of significant mass compared to the mass that is attached to the end of it.

258. **ST2:** hmm

259. **SP2:** Now once you have this, that's the Omega (2.5) we know we can apply this to the to the diaphragm So if we set the the frequency of the diaphragm is given us the X square over R square, then uh E square. Divided by twelve or one minus M square.

260. **ST2:** hmm

261. **SP2:** This is fpr the spring this is for a diaphragm.

262. **ST2:** hmm

263. **SP2:** And if we if we say this is uh this presents a spring and a mass.

264. **ST2:** Yeah.

265. **SP2:** Now if we say that this is the same, if we have it, we equivalent K over M of a spring. And so if we equate this to what is N and what is it, what is K?

266. **ST2:** hmm

267. **SP2:** So that's if you equate these two so we need to find which one is equivalent to the mass and. Which one is uh you know and there is a row here which refers to the mass.

268. **ST2:** hmm

269. **SP2:** So uh and K we know K is in Newtons per meter.

270. **ST2:** hmm

271. **SP2:** So then from here and we know the Young's modulus is Newton's per uh is it the square?

272. **ST2:** yes

273. **SP2:** so and form there you work out to find what is your uh So if you bring everything under the squared root Omega equals square root of A for E D squared divide by two or one minus two so we bring what are for one minus new square.

274. **ST2:** hmm

275. **SP2:** So from here. Now how can we then again convert it to K over M? (4.3) We know the uh we Know we have a disk which is attached to the edges (2.5) And then this disck at its first modal vibration or zero modal vibration then its what is its mass here? The mass is the area or the volume. So it's by R. Square. The area times, the thickness. Times, the density. That is it is mass.

276. **ST2:** hmm

277. **SP2:** How can we now make this in here? How can we make it so you can see here it's it's lumber for a D-3 divided by two out of a row of four, one minus view square So by multiply by by and divide by by. Ah, for we have our square then is this D square or D three? it is D square, isn't it?

278. **ST2:** I think the square Yes.

279. **SP2:** The square so we can multiply it by D and divide it by by T.

280. **ST2:** yes

281. **SP2:** And you can see we have by our square T also so we have a mass here.

282. **ST2:** hmm

283. **SP2:** So if we say it's by lumber for a D-3 divide by twelve By R. Square. By Square T. 1 minus muz Square and you have another R square

284. **ST2:** hmm

285. **SP2:** So from here by number four. Eighty three divided by uh So by.

286. **ST2:** it is already here

287. **SP2:** yeah sorry twelve square times the mass. Times one minus M square.

288. **ST2:** hmm

289. **SP2:** That's from a very quick assumptions we make. Now you need to check your units. Do they make sense now? Is this really all this? Is it K

290. **ST2:** hmm

291. **SP2:** Is all of this now uh Is it (.) does it represent Kay or not?

292. **ST2:** hmm

293. **SP2:** So that's probably that's the starting point. If you want to find some analogy, because we know the the diaphragm and the muscle hanging from it is the same as a spring mass uh mechanical system

294. **ST2:** hmm

295. **SP2:** and then if you want to compare that to what uh where is your mass and what is your stiffness?

296. **ST2:** yes

297. **SP2:** And then could you find any then references that can give you the stiffness on itself off of uh of disck So what is it if you can find it stiffness or you can find something uh analogy to this because I read that in Chapter 4.

298. The other thing I noticed is your references are not strong.

299. So not too many references in Chapter 4.

300. **ST2:** no I added so many references

301. **SP2:** oh really

302. **ST2:** about about twenty references I think

303. **SP2:** right. You have added some more then

304. **ST2:** Yeah

305. **SP2:** . Right.

306. **ST2:** many many references honestly

307. **SP2:** Yeah. Yeah

308. **ST2:** because as you know the first draft was uh

309. **SP2:** yeah

310. **ST2:** Just to focus on writing.

311. **SP2:** Ok so that this this is the displacer so you have changed things there er.

312. **ST2:** yeah I also changed the name of this one,

313. **SP2:** right?

314. **ST2:** I called it engine designed but I mean what we should call it,

315. **SP2:** but this is still in the uh Still needs the design of the bellow.

316. **ST2:** No no it is not the bellow

317. **SP2:** right so It's the full assembly.

318. **ST2:** Yeah, it's the

319. **SP2:** right right so if you are now moving into your full assembly.

320. **ST2:** It's the last should be the last version of the uh of the design .

321. **SP2:** Okay.

322. **ST2:** Because it's with the uh with the diaphragm

323. **SP2:** Yeah.

324. **ST2:** and I drew it in sketch uh Sketch app.

325. **SP2:** Yeah. This looks quite a neat uh a neat drawing.

326. **ST2:** What about Dr. Ali if you go back above here, because in this stage. It's about the design.

327. **SP2:** hmm

328. **ST2:** So I use the sketch app to draw them uh

329. **SP2:** yeah

330. **ST2:** draw them in three dimensions is it uh I mean

331. **SP2:** Yeah I mean as long as it's a neat and shows your uh your drawings neatly. I'm happy with this. This looks fine the flanges (and the

332. **ST2:** and also) I have to uh draw it close cylinder because I have to compare between them.

333. **SP2:** Yeah

334. **ST2:** . and this is the uh the flange

335. **SP2:** yeah (I mean

336. **ST2:** attached attached to it,

337. **SP2:** yeah I mean with this. I don't know, you need to point to the slope here or champer or whatever. If you would do that, then you have to appoint to the house. You have to point to everything so

338. **ST2:** because because I mean, this like a normal I mean flange.

339. **SP2:** Yeah (but

340. **ST2:** the one) the one thing is different is that the slope (or the

341. **SP2:** yeah. Yeah) yeah.

342. **ST2:** I mentioned in the description but not sure if it is

343. **SP2:** Yeah.

344. **ST2:** For example this one is the treated connector.

345. **SP2:** Yeah

346. **ST2:** so. just to show (.) how this looks like the.

347. **SP2:** yeah But then did you bring all the operating parameters of the full design?

348. **ST2:** Yes it is later.

349. **SP2:** Right.

350. **ST2:** For example, here, if you go uh scroll above a little bit i'll try what I'm going to do for the pictures, don't worry

351. **SP2:** yeah

352. **ST2:** because I'm going to uh but I think I have to dismantle the engine,

353. **SP2:** yeah

354. **ST2:** and to take exactly what I need from the engine I mean the picture that I need.

355. **SP2:** Right.

356. **ST2:** So that's why I tried to just to leave those to to uh to preserve the space.

357. **SP2:** Right. Right because, you know, this is the chapter you were saying I'm going to finish at the end of this of this week.

358. **ST2:** Hopefully not not this week.

359. **SP2:** All right.

360. **ST2:** Next week.

361. **SP2:** Right. OK and then you are saying you need to dismantle the rig and then take more pictures

362. **ST2:** it's ok I can leave for the pictures

363. **SP2:** hmm

364. **ST2:** maybe to leave it later

365. **SP2:** hmm

366. **ST2:** In case I need to do some tests or whatever.

367. **SP2:** Because you remember the time when you were assembling I asked you to. Do uh to take a lot of pictures from different angles?

368. **ST2:** Honestly, I took so many pictures

369. **SP2:** yeah and now you find yourself, you need more or different ones.

370. **ST2:** honestly I found them uh it Is (3.2) I'm not happy with those . I feel, for example some pictures. I'm not happy with the background

371. **SP2:** yeah Yes. Yeah.

372. **ST2:** Yeah some pictures maybe do need I mean to focus in in some angles. That's that's why I'm uh

373. **SP2:** Yeah.

374. **ST2:** I think I need to do that. If you go scroll up Dr. Ali. So this part here I think is the crucial part

375. **SP2:** right

376. **ST2:** . And this in this part I brought all calculations which I used to put them on the bellows

377. **SP2:** hmm

378. **ST2:** and put all of them under this uh this title so

379. **SP2:** right so the displacer size and dimension.

380. **ST2:** Yeah and as well, if you remember the table, I put the table here instead of.

381. **SP2:** Yes. (So

382. **ST2:** the real dimension

383. **SP2:** Yes. So what is the purpose of this equation here for uh in this section?

384. **ST2:** Honestly, because I need to justify why we have to choose this uh this dimensions

385. **SP2:** right

386. **ST2:** and this size.

387. **SP2:** Yeah

388. **ST2:** . So I referred to this this equation as the common equation used for the primary design for uh in sterling engine.

389. **SP2:** yeah

390. **ST2:** So for example, here, the only factor I can play with is the swift volume for

391. **SP2:** yeah

392. **ST2:** for the pressure the atmosphere pressure for the frequency. It's low frequency. I don't want to go to high frequency.

393. **SP2:** yeah

394. **ST2:** So the only thing that can play with is the swift volume

395. **SP2:** Yeah.

396. **ST2:** So.

397. **SP2:** So you want to bring from here you say why you chose a dimension of the displacer because of the swift volume

398. **ST2:** Yeah.

399. **SP2:** Right.

400. **ST2:** Yeah. And honestly, I mentioned another another another thing about the dimensions and the siz e

401. **SP2:** hmm

402. **ST2:** For example uh uh I mentioned that we tried to do many calculations to justify which dimension is uh is suitable

403. **SP2:** rights.

404. **ST2:** and we decided to to use to to choose dimensions that can put the uh the prototype can be simply handling manufacturing.

405. **SP2:** Yeah but then you know what your your dimensions are. You calculated based on your swapped volume. But importantly, you can look even if you found, say, your displacer diametre is a hundred millimetre. Then when you go to buy the component, you cannot find it. One hundred million to see you have to have the one that is standard and as close to it as possible

406. **ST2:** I mentioned that

407. **SP2:** Yeah (so that's

408. **ST2:** Yeah, yeah I mentioned that that the core part of the uh our prototype is the bellow .

409. **SP2:** Yes exactly. So you have.

410. **ST2:** Yeah

411. **SP2:** you have to do to design your displacer

412. **ST2:** Yeah

413. **SP2:** Around that the uh the variable diameter.

414. **ST2:** Yeah. yeah yeah excatly I mention that point and you'll find it anyway.

415. **SP2:** yeah

416. **ST2:** I mentioned that s that the core is the I mean the bellows

417. **SP2:** hmm

418. **ST2:** and we check the available bellows in the manufacturers.

419. **SP2:** Yeah.

420. **ST2:** So the other thing we we have to consider it. It is. I mean what's called the the mechanical stability.

421. **SP2:** Right.

422. **ST2:** So (we

423. **SP2:** of) the bellow

424. **ST2:** yeah of the bellow We don't go to too long bellows

425. **SP2:** yeah

426. **ST2:** so uh we we maybe miss the control of the of the bellow installation.

427. **SP2:** hmm

428. **ST2:** And as well, we need a minimum of say reasonable stroke for

429. **SP2:** yeah, (yeah, yeah.

430. **ST2:** for the displacer)

431. **SP2:** So there's a place uh a number of convolution

432. **ST2:** yeah I calculate it that later

433. **SP2:** Yeah,

434. **ST2:** so if

435. **SP2:** (And then

436. **ST2:** if you have) time and

437. **SP2:** I will I will have a look of course

438. **ST2:** Yeah.

439. **SP2:** And then this, this graph here still needs to be slightly presented it better. So I would probably stop here somewhere here

440. **ST2:** hmm

441. **SP2:** because he's all more or less the same you need to concentrate on the once you're at the number of. What is this one convolution for number of what

442. **ST2:** it is the frequency.

443. **SP2:** the frequency so once the frequency is higher than somewhere 30 than it stays constant there for the number of.

444. **ST2:** convolution

445. **SP2:** convolution here here.

446. **ST2:** Yeah, and those are the dimeters for

447. **SP2:** Yeah.

448. **ST2:** the bellow

449. **SP2:** so in our case, you are operating somewhere here, 50,

450. **ST2:** yes,

451. **SP2:** and the number of convolution uh so which one did we use? We use this one.

452. **ST2:** Yes.

453. **SP2:** Oh, D of Ninety four.

454. **ST2:** That's exactly ninety five I think

455. **SP2:** Yeah so at fifteen hertz we are talking about what Fifty convolutions

456. **ST2:** it is too high.

457. **SP2:** Yes it's too high. Yeah. So in our case it's too high. why is it too high. So it does not match

458. **ST2:** yeah

459. **SP2:** for the number of convolution we use.

460. **ST2:** yes

461. **SP2:** Because the frequency now because this frequency now matches uh matches this only if there is no concentrated mass on the displacer uh on the power piston

462. **ST2:** . Yes.

463. **SP2:** Because this frequency here this is not your displacer frequency this is your engine frequency

464. **ST2:** hmm for the bellow itself frequency without without any masses added to it

465. **SP2:** right right. Without the mass of the

466. **ST2:** (the displacer

467. **SP2:** the displacer)

468. **ST2:** because we uh because we have two cylinders.

469. **SP2:** Yeah

470. **ST2:** and It's a lot of them around 500 grams

471. **SP2:** Yes so basically the frequency of the bellow itself probably it is around 30 hertz. If you take it simply as without any masses mounted on it.

472. **ST2:** Yeah. theoretically. Yes.

473. **SP2:** Yeah. So then you gp uh you went on to include those as previously the frequency again. But that one should be reflected in your equations here when you say it is 15 convolutions that's 50 convolutions. So somewhere here for fifteen hertz.

474. **ST2:** and this equation may be I will take it to the next section because uh because I already put the numbers in the

475. **SP2:** right

476. **ST2:** in the table here. So this table includes all specifications and dimensions of the displacer.

477. **SP2:** Yeah,

478. **ST2:** including the materials honestly for those

479. **SP2:** yeah

480. **ST2:** . Those information and data from from the manufacturer.

481. **SP2:** Right yeah

482. **ST2:** the data the sheet of the

483. **SP2:** yeah the manufacturer. Yeah.

484. **ST2:** yeah even at the life cycle and the operating temperature.

485. **SP2:** Yeah. But again, this life cycle of four hundred thousand movements is based on what is based on this stroke.

486. **ST2:** Yes.

487. **SP2:** Because if you remove that, if you reduce the stroke then you increase the number of oscillations?

488. **ST2:** Honestly, what I found in one of the bellows manufacture website

489. **SP2:** yeah

490. **ST2:** they said set for specifically for edge wilded which we used

491. **SP2:** to have the the highest life cycle

492. **SP2:** hmm

493. **ST2:** It should be moving like only 20, 20 percent in compression.

494. **SP2:** Yes in compression yes

495. **ST2:** and 80 percent in (extension

496. **SP2:** extension) yes (so

497. **ST2:** so) it was different from from the other type, which is the deforming one, which is 50 percent, 50 this

498. **SP2:** year.

499. **ST2:** But for our I mean, (our application.

500. **SP2:** Did you include) this information here?

501. **ST2:** No, not yet

502. **SP2:** You should include it.

503. **ST2:** hmm.

504. **SP2:** yeah so because then we will be looking under what conditions we can achieve infinity number of oscillations.

505. **ST2:** hmm

506. **SP2:** So under what condition the bellow wouldn't fail ?

507. **ST2:** hmm

508. **SP2:** If if if the manufacturer specifies that the number of

509. oscillations is one hundred thousand for a plus minus five

510. millimetres stroke. If we reduce that stroke by how much we extend

511. the lifetime of the bellow, do you think the tests we have done so

512. far have done 100 thousand oscillations?

513. **ST2:** I think yeah

514. **SP2:** Probably more.

515. **ST2:** Yeah, yeah

516. **SP2:** . So because maybe we are not operating at that uh that stroke.

517. Plus minus five stroke plus plus minus five. Millimetre

518. **ST2:** But I mean, how. For our prototype, it is not possible to

519. **SP2:** hmm

520. **ST2:** I think, to to apply this, continue to make the bellow just go,

521. go. Just 20 percent

522. **SP2:** hmm

523. **ST2:** of its length in compression

524. **SP2:** yeah

525. **ST2:** and 80 percent in its extension

526. **SP2:** Why uh no no you cannot say Plus 20, minus plus 80. Minus 20. If you say it has to be 20, 20 or eighty eighty.

527. **ST2:** Yeah, yeah.

528. **SP2:** Yeah. You cannot have it different. It must be the same

529. **ST2:** Yeah. That's why I said it's it's not possible for us to to control the bellow

530. **SP2:** yeah

531. **ST2:** to the (.) I mean the criteria which is I mean mentioned by the manufacturer.

532. **SP2:** Yeah.

533. **SP2:** So if the manufacturer says 20 percent you have to stick to 20 percent, youcannot go more than that

534. **ST2:** hmm

535. **SP2:** So if it is if you said extension 80 percent, compression 20 percent. So you have to limit both your extension and compression to 20 percent.

536. **ST2:** to the minimum.

537. **SP2:** Yeah,

538. **ST2:** the minimum criteria

539. **SP2:** So uh So you have added that What next

540. **ST2:** for this one. Not yet I havenot done it yet

541. **SP2:** for the diaphragm

542. **ST2:** This is actually for the power piston design

543. **SP2:** right the power piston design

544. **ST2:** But I haven't done anything with this part.

545. **SP2:** right

546. **ST2:** I just need to. Just do it do it I mean because this, for example, I have this Part 4, which is about the casing and the other stuff, cooling

547. **SP2:** uh

548. **ST2:** I mean that cooler and the heater.

549. **SP2:** Yeah,

550. **ST2:** I don't think I have too much to do hear.

551. **SP2:** Yeah, you just describe as you have done here and describe it and picture here and explaining how it works hit sources news reports and supporting frame

552. **ST2:** I will replace it with uh real one

553. **SP2:** All right.

554. **SP2:** Again, where you are supporting frame, you need the supporting frame is important because of the springs. You having there

555. **ST2:** hmm

556. **SP2:** you need to relate it somehow to the dynamics of the engine. Because uh without those sprongs, to if you want to get to self started, it will be very difficult because those mounting springs, that's those that gives the initial if you want

557. **ST2:** initial start

558. **SP2:** the initial stroke to start. So when you when you put the frame, you have to include those mounting springs onto the frame. You remember the first design was making flat, flat, flat, springs. You remember those flood springs? you remeber those

559. **ST2:** Yes.

560. **SP2:** And then we moved into having the compression springs.

561. **ST2:** Yeah,

562. **SP2:** so probably I would include both designs.

563. **ST2:** ok

564. **SP2:** Because both are valid. You know, you can use either of these or they both work as we found out.

565. **SP2:** I am not sure uh I mean, this part feels like a part of this part is like a repetition for the previous part

566. **SP2:** well no. In this in this part here. What what you want to show here? Because you have not tested it. We do not test it the power piston with the bellows. So all what want to say here is you have two options for designing the power piston.

567. **ST2:** hmm

568. **SP2:** Either you have it like the design of the displacer in which you use the bellows and then you have a different type of uh not type but a, different size of the bellow

569. **ST2:** hmm

570. **SP2:** or for a simpler design. Use the diaphragm. So these are the two options in in your case, it's two parallel options and then you opted for a diaphragm, which you tested. Have you have you got more time? You could test the other option. But again, it's an option you put in your further work in chapter six.

571. **ST2:** Anyway, I mentioned two actually three designs.

572. **SP2:** Yeah.

573. **ST2:** in in in uh when when when I go through I mean went through the design different designs of the engine

574. **SP2:** hmm

575. **ST2:** two are practically fabricated

576. **SP2:** hmm

577. **ST2:** and one. It's actually was like theoretically investigated.

578. **SP2:** hmm

579. **ST2:** And I mentioned that the second design, which is the first design has been produced.

580. **ST2:** It has been tested, but it was like impossible to it seems impossible to work in (this stage.

581. **SP2:** Which uh) which one?

582. **ST2:** the one with two bellows. Because I mentioned this because if you remember Dr Ali with this design,

583. **SP2:** hmm

584. **ST2:** it was actually two things went wrong.

585. **SP2:** hmm

586. **ST2:** The first thing it's the mistake by the technician

587. **SP2:** hmm

588. **ST2:** If you remember when David make make, one of the key is quite large,

589. **SP2:** yes. Yes

590. **ST2:** Yeah. And the other thing was the friction.

591. **SP2:** hmm

592. **ST2:** Because the first design was slightly too high or too tall.

593. **SP2:** So there is always a twist to one side

594. **ST2:** yes a twist Yes. Yeah the size forces are affected I mean the engine. Doesn't work and the other thing which we haven't. I mean taught of which is how to seal the pounce space because that design there there was a space

595. **SP2:** on the on the on the power piston with the bellow.

596. **ST2:** Yes.

597. **SP2:** Yeah. Yeah. With that one we thought that because you have to seal that and to seal that more complications.

598. **ST2:** Yeah. I mentioned all of those things

599. **SP2:** yeah

600. **ST2:** in the uh the design but i mean in this stage which is in this part which is like the manufacturing process.

601. **SP2:** hmm

602. **ST2:** I mean maybe just to describe it in one or two three paragraphs, what have uh has has been done for the uh may be I dont need to to make all this I mean this work do you think it's.

603. **SP2:** I mean you don't go into detail because you have not tested it so all you need there is probably, as you said, short paragraph two, three paragraphs. The picture of that you have that you have designed, did you have manufactured it? But when it came to implementing testing it you used you know, you had another option, which is the diaphragm type. So you want the root of the diaphragm. So because you have not you don't have any data from it or you need testing. So there is no point of going further into explaining it. You will go into your chapter six as further work, which means somebody else who comes after you or you are recommending that somebody who wants to do similar work could implement that using a power piston with a bellow

604. **ST2:** ok

605. **SP2:** And then the bellow itself could be the ceiling could be the ceiling for the working space.

606. **ST2:** hmm

607. **SP2:** because that's you know That's the idea of having a bellow and on on the power piston side.

608. **ST2:** ok yeah

609. **SP2:** so that's really that's uh so that's the engine and casing cylinder and then the support frame
610. Yeah
611. SP2: but overall, (0.2) I mean when you say a chapter is
612. finished 0.1) you want to see it like a really good
613. story there (.)I will start reading it I will (.)I will
614. appreciate how things are organised uh (0.2) it is the
615. narrative of the(.)of the chapter that's what I want to
616. see (0.2) uh at the moment sill uh it has not
617. really (0.5) I mean all the elements are there (0.2) but
618. but but the writing of uh(.) presenting Those elements
619. still I think needs a little bit of work
620. **St2:** (0.5)ok but up to uh I mean now let's say up to the displacer
621. **Sp2:** yeah
622. **St2:** I think I went through those
623. **Sp2:** no no (no
624. **St2:** for) me I think I went through them
625. **Sp2:** um
626. **St2:** and I feel it is uh I mean uh it's sensible now
627. **Sp2:** yeah
628. St2: but the rest of the chapter yes it needs more uh more work
629. Sp2: yeah
630. **ST2:** What about Chapter 5? do you think

631. **SP2:** so Chapter 5.

632. **ST2:** I just put the titles and some some references.

633. **SP2:** where is uh where is chaprter 5

634. **ST2:** it is there? I start just to put the title and to start thinking
635. of what shall I do.

636. **SP2:** So so in Chapter 5, again, your full testry picture goes in there

637. **ST2:** hmm

638. **SP2:** with your microscope uh not microscope.

639. **ST2:** the oscilloscopes

640. **SP2:** yeah all your testing equipments needs to be need to be thre. Then your B.V. diagrams captured from the scope, all those P V diagrams and then under different types probably one with the stroke one without stroke. This shows good picture. This doesn't show good picture. This start, this doesn't start.

641. **ST2:** hmm

642. **SP2:** So you need all the process of making it work

643. **ST2:** hmm

644. **SP2:** because you cannot just put the heater and it works you to explain what are the difficulties you encountered to make it work. Because you spend quite a lot of time just met once it's build. You spend a lot of time making it work. How did you do that? You need all that needs to go into chapter five is part of the experimental testing of the engine

645. **ST2:** yeah

646. **SP2:** Then when you made it work, you know, you took some results you took the previous diagram and you used instruments, and so all that process needs to be explained.

647. **ST2:** hmm

648. **SP2:** A lot of a lot of a lot of things you can uh write about that, because somebody who comes and wants to build something similar that needs to read this and find out what are the difficulties to overcome to make it work.

649. **ST2:** hmm

650. **SP2:** That experience, you can not get it from elsewhere unless you did you did the work. You could not get that experience.

651. **ST2:** yes yes

652. **SP2:** So it helps other researchers to read how to solve similar problems

653. **ST2:** and to show uh show difficulties.

654. **SP2:** yes

655. **ST2:** and to show It wasn't so simple task

656. **SP2:** No.

657. **ST2:** or easy work.

658. **SP2:** No no no

659. **ST2:** or straightforward work to get results.

660. **SP2:** Yeah. Yeah.

661. **ST2:** So at least the examiner will feel that's we face many, many things and get some experience.

662. **SP2:** Of course you got a lot of experience from this. So from building it into making it work it is not you know, it's a simple case and You've just turned the heat and It works.

663. **ST2:** it took more than one year for me

664. **SP2:** Exactly. Yeah. So you have to eliminate. You remember when I said you need to eliminate the problems one by one first before you can get it to work so once you change that, you change that, you change the supporting frame, you change the arrangement of the displacer inside to make it free. And then we changed. They kept changing the mass on the diaphragm to make to make it resonate of the same frequency like the displacer.

665. **ST2:** yeah

666. **SP2:** Eliminating the leaks from the engine is quite a big problem as well So to make sure there no leaks from the engine and importantly, you did not get it to work until you changed that heater cause initially used the electrical heater and then you changed you change into the gas heater. That's very crucial because the electric heater does not hit the engine quickly, quick enough.

667. **ST2:** yeah

668. **SP2:** So by the time the air, when you use the electric heater, by the time the heat reaches the working fluid or the engine is already a hot.

669. **ST2:** Yeah. And by the way, it's one of the things I mentioned in displacer design foruh I mean, specifically for the displacer. cylinders

670. **SP2:** . Yeah.

671. **ST2:** I mentioned, that's. The short cylenders are desirable, but in the other hand,

672. **SP2:** yeah,

673. **ST2:** we have we need like areasonable uh I mean, length of the displacer to avoid conducting heat from the expansion.

674. **SP2:** Yeah, yeah, yeah. And ideally it has to be of low thermal conductivity material

675. **ST2:** yes

676. **SP2:** but of course you can

677. **ST2:** . Yes. Yeah. It's already mentioned.

678. **SP2:** Yeah.

679. **ST2:** We we choose which was the stainless steel

680. **SP2:** . Yeah.

681. **ST2:** Which is the compared to other metals it is it is uh

682. **SP2:** buut in this chapter it's your experience, all your experience in testing the engine. Maybe you think oh it is not enough. I can right on this maybe, but you can expand that to whatever you know all experiences you get uh the experience you gained and problems encountered how you sort uh you solved them and then the data

683. **ST2:** because honestly I thought just for this just for this chapter just to choose the ideal graphs

684. **SP2:** hahaha.

685. **ST2:** to mention the power grid,

686. **SP2:** no no no

687. **ST2:** how much power we got from the engine

688. **SP2:** no no

689. and only to maybe to describe the process

690. **SP2:** no no

691. **ST2:** of doing the I mean the test.

692. **SP2:** no it has everything your test rigs, everything you draw pictures and things like that have to be there as well.

693. **ST2:** hmm

694. **SP2:** Especially the full test rig has to be there a good uh you probably already have pictures of those showing everything. Showing the the gas cylender and showing the even the insulation. You remember we put around that as well to you need to show it to minimise heat leak from the engine and so on.

695. **ST2:** hmm

696. **SP2:** So your your your your picture. You will have the full picture and you will have you put arrows pointing into those, explaining each one what it is.

697. **ST2:** So it should be like, long, chapter

698. **SP2:** , it is a long chapter. Yes.

699. **ST2:** Similar to the Chapter four then

700. **SP2:** it is similar. Yes, it's both. Chapter four is the design. Chapter five is the experience you get from testing it and the results. so both chapters are the core of your work.

701. **ST2:** In this case, so may be I need another eight or nine months. to finish it

702. **SP2:** oh hahaha No, no, no, that's uh these two chapters go hand-in-hand because this is something I've done, so uh as things are now, your Chapter 5 still needs work as well uh Chapter 4 needs work. So Chapter 4 and Chapter 5 is the what the examiner is going to examine you about because that's the uh really that's the work uh the contribution

703. **ST2:** yes

704. **SP2:** you made into the project. You strip out these two chapters. Nothing left.

705. **ST2:** hmm

706. **SP2:** there is literature review. there is the computer model, which is common Codes. So this is what will earn you your degree.

707. **ST2:** yes

708. **SP2:** So they need to be presented, you know, in a coherent and clear way you don't need to miss any information on that.

709. **ST2:** ok

710. **SP2:** And then you move into chapter six. It would be chapter six. So in chapter six, you could either have some comparison of results between the computer model and the tests as a separate, separate, separate chapter. Chapter six.

711. **ST2:** hmm

712. **SP2:** Or you could have it probably just at the end of chapter five and then chapter six, mainly your discussion and conclusion and recommendations.

713. **ST2:** How many days do you think should be devoted for the conclusion?

714. **SP2:** Well, I mean, the standard of good one uh I got this one submitted just this guy's having his examination on the end of March this month So this guy submit one hundred and fifty pages and uh well, don't forget you have appendices as well in your for your computer model

715. **ST2:** yeah

716. **SP2:** So this is a hundred and fifty pages. So these are the discussions Hundred and seventy so overall hundred and seventy hundred and eighty. You don't want to be too big. You don't want to be this. This is the big picture and putting explanation for each of those, test rigs the big systems. So I would probably say about 200 pages is the ideal the ideal length but again, it's really the most important is the content.

717. **ST2:** yeah

718. **SP2:** Is is your content strong enough? this is another thesis which is mainly computer modelling. So there is no lab work again. You can see around 200 pages, 200. it's got about 250 pages. If you strip out the appendices.

719. **ST2:** ok

720. **SP2:** So again, that's more or less the ideal length. Again, this thesis viva is at the end of this month

721. **ST2:** hmm

722. **SP2:** So that's again, it is. the quality really that is important. Of course, you have a number of minimum word recommended uh number of words,

723. **ST2:** yeah

724. **SP2:** but it's what you present inside that counts more than just saying I have 250 words, uh 250 pages, and if the content is not strong enough, then number of pages may not be, you know, count for much.

725. **ST2:** yeah honestly this is better to to make something shorter and more concentrated, so it doesn't mean that the long I mean,

726. **SP2:** yeah, yeah. But but this is either you would find the number of pages around 200, 250, that's the average You would find you would find probably Shorter as some are170 and 180 pages. Again it depends but it does depend on the content. I don't remember if I have to the thesis here

uh one of my PhD students probably less than that, all his chapters are simply papers he published so he just put a Chapter 7

727. **ST2:** hmm

728. **SP2:** It's just a paper.

729. **ST2:** Yeah,

730. **SP2:** but again, you have to have a paper in renowned journel to be able to do that.

731. **SP2:** hmm

732. **SP2:** So again, that's that's feasible as well. You just uh your chapters is the work you published.

733. **ST2:** ok

734. **SP2:** I'll have a look through these uh the amendments you sent me meanwhile, I think you need to again go. Probably when you feel that you cannot do more on a chapter, move to another chapter so move to chapter five. At least you will have an outlay of under structure and some material in there

735. **ST2:** yeah

736. **SP2:** And then you might give you more ideas to go back to chapter five. You might have some materials moving from one chapter to another as well.

737. **ST2:** yeah

738. **SP2:** So while you are writing chapter five? You could probably have other ideas to include in Chapter 4. So rather than get stuck in one chapter and you cannot move anymore.

739. **ST2:** honestly, that's the problem with me, it's the time I haven't enough time that's it less than two months.

740. **SP2:** Right.

741. **ST2:** but I'm trying now to to manage my time and to.

742. **SP2:** Yeah.

743. **ST2:** and to put a rigid plan

744. **SP2:** yeah

745. **ST2:** So for example this weekend. I worked for the whole uh this week it's the first time since I got tWo two months, now or three months

746. **SP2:** right

747. **ST2:** to work every day full time. I mean on my thesis. That's why I was struggling to to write it. I don't have any problem with writing.

748. **SP2:** No, no, no, no, no, no.

749. **ST2:** The problem is there's (no time

750. **SP2:** with with) the writing. You must absolutely concentrate. Hundred percent once you break from what you have doing that said, when you come back, it will take another couple of days just to go back into the mood of writing

751. **ST2:** and the interface interfaces and I mean

752. **SP2:** the interference

753. **ST2:** yeah interference and the confusion, with uh with that other of things from outside. That's why

754. **SP2:** right

755. **ST2:** Sometimes I must uh

756. **SP2:** now I think I think in your case you have now you have the path clear you have your thesis. That's the aim. That's the main job you have at the moment you have to concentrate on. You need to write that thesis. You have done the work. You need to write the thesis you have done. literature review previously. You have done the computer modelling. You you are writing the Chapter 5 on the on the on the on the manufacturing and now it is the discussion.

757. **ST2:** yeah

758. **SP2:** So once you have this first draft, at least in front of you, then it gives you an idea of work of strengthen in your thesis, where to add other things

759. **ST2:** hmm

760. **SP2:** But before you have this first draft, you still you know, we dont know what is what is the weakness.

761. **ST2:** Yeah.

762. **SP2:** of you're your thesis. So what chapter five needs, you know, at least you should have some kind of a start on it and with some materials in there.

763. **ST2:** Yes. What about the guy who's I mean, you have a meeting with him (about the

764. **SP2:** he's coming) He's coming next week I might I might look at the uh because I need to show him the engine. And what about that Silicone diaphragm we. ordered. Do you remember that?

765. **ST2:** Yeah, I remeber yeah,

766. **SP2:** I need probably to attach that one as well. So the next meeting uh the meeting I have with him is on next Thursday here. So that's I don't know. whether, to show him more notes so but on that week Ihave a lot of meetings. So that's next week So anyway, I was thinking maybe I would take uh that silicone diaphragm and uh and cut it because I think we both thought that we can make two of them.

767. **ST2:** Yeah,.

768. **SP2:** Yeah.

769. **ST2:** exactly yeah.

770. **SP2:** So I'll cut one uh one and make one diaphragm and probably it is a good idea to attach that and see what cause I feel like it's stronger that one is stronger to give you better stability rather than the uh (2.1) whether it works or not. Because now you are doubling your sickness (.) I think it's doubled the thickness isn't it.

771. **ST2:** More than double.

772. **SP2:** Yeah. More than double.

773. **ST2:** It's too too thick. That's that's why. I don;t know uh I think it's difficult to make it square because it's too thick.

774. **SP2:** um.

775. **ST2:** That why I am uh not sure

776. **SP2:** Well, (no no no.

777. **ST2:** honestly just) Just this morning I was thinking of this diaphram.

778. **SP2:** yeah.

779. **ST2:** I put it in the bench and I forgot I forgot about it.

780. **SP2:** um.

781. **ST2:** But this morning we I am coming to the office.

782. **SP2:** um.

783. **ST2:** . I was thinking I haven't done anything with this diaphragm.

784. **SP2:** Yeah

785. **ST2:** I was thinking It's it's like thick,thick diaphragm and I feel it's it's difficult to make it work I don't know

786. **SP2:** No,. No no no don't look at the sickness. It's you know, it's a flexible diaphragm. It's uh there's no problem there. As long as there is enough forces, you can make it move. Why we opted for that. It's because it will give you more stability in terms of diaphragm bulging and.

787. **meeting 3 SP2-ST2-2**

788. **SP2:** Yes. Yes so if you increase your frequency (2.1) it could be yeah, you could reduce the uh the mass attached to it. Yeah, but I was thinking I might take it over this weekend and and cut it and see if I if at least one half of it. So we don't we don't we don't damage the other.

789. **ST2:** Do you. Do you want to do it yourself.

790. **SP2:** Yeah, I'd do it myself yeah.

791. **ST2:** because we don't have any technicians.

792. **SP2:** No, no, no.

793. **ST2:** and we can't (trust them to

794. **SP2:** No, no, no, no). It's it's something easy I can do it myself very easy it is just uh with scissors, basically on my sharp knife and you can do it.

795. **ST2:** But that's the dimen uh the dimensions uh It's exactly for two, if you (make any mistake.

796. **SP2:** no no you take) the old one, you put it on top of it.

797. **ST2:** Yeah.

798. **SP2:** And you do that uh you don't uh.

799. **ST2:** OK,.

800. **SP2:** So you have to have a template. You cannot just cut it without a template.

801. **ST2:** ok and how uh What about the holes around.

802. **SP2:** Yes, the same thing. So you have to take the old one. You put it on top.

803. **ST2:** I mean how to uh how you're going to to cut them it is I think uh.

804. **SP2:** The best the best way is you have a uh a cylinder rod or a pipe and you heat it up to high temperature and you get it.

805. **ST2:** Um

806. **SP2:** You get it through that's the best way. If you want to have a neat hole, you cannot just puncture it.

807. **ST2:** yeah.

808. **SP2:** if you puncture it , you damage it.

809. **ST2:** Yeah and it's better if you uh you (.) I'll try to dismantle the flange that top vlange.

810. **SP2:** Yeah.

811. **ST2:** So it's better to make the holes uh to use the flange to make the holes and uh

812. **SP2:** Maybe the flange is even better because we have two flanges anyway.

813. **ST2:** um I think I have one, but the top one is easy to remove it anyway

814. **SP2:** Yeah. Yeah. Yeah.

815. **ST2:** So I mean is better than two to make the holes uh.

816. **SP2:** as part of uh with the flange.

817. **ST2:** with the flange is better.

818. **SP2:** Yeah.

819. **ST2:** to use uh to use the old diaphragm because I struggled with it the diaphragm and.

820. **SP2:** Yeah.

821. **ST2:** sometimes I tried to scratch it.

822. **SP2:** yeah.

823. **ST2:** It's a bit to one side to make to make it in the centre.

824. **SP2:** yeah yeah.

825. **SP2:** so the flange uh the uh the aluminium flanges is smaller.

826. **ST2:** Yeah. I think it's better.

827. **SP2:** Yeah I'll fixed that Yeah (.) so if you do that then I will need probably for tommorow.

828. **ST2:** Okay.

829. **SP2:** If you dismantle it for uh but as long as you don't disturb the displacer.

830. **ST2:** Yeah of course yeah

831. **SP2:** you don't need to disturb the rest of it because hopefully if I have some time then on Monday let me just check my diary (4.1) then uh so on Monday probably around 3:00. After my lecture I might try to put it together if I have time.

832. **ST2:** ok.

833. **SP2:** And then on Tuesday afternoon we could run a test If you are around.

834. **ST2:** ok yeah.

835. **SP2:** So if it's not if everything goes well uh nothing goes to plan anyway

836. **SP2:** yeah okay just occtually hoonestly Dr. Ali I was wondering whether if it's possible to attend the meeting with the guy in case they need someone to work with him and Africa to sit the project in Africa.

837. **SP2:** Yeah. Yeah, yeah.

838. **ST2:** In case I don't know, maybe they

839. **SP2:** no this meeting is is more about, uh, about legal things of the university.

840. **ST2:** .oh OK.

841. **SP2:** You know, disclosing things, confidentiality and things like that.

842. **ST2:** ok that's fine.

843. **SP2:** But I have I have absolutely no idea what he wants. He just said, I read about your no no he Contacted my coleague in Manchester.

844. **ST2:** um.

845. **SP2:** uh about Stirling engines and that my colleagues said go and he gave him my phone number. And that's how he contacted me.

846. **ST2:** OK.

847. **SP2:** And then when he contacted me I said, yes, I have a PhD student now working on a Stirling engine. Do you want uh and then he said, can I come and have a look at it? That's how he came. And then I said, well, there might be some confidentiality things. So, you know, we have to involve the university and things like that to.

848. **ST2:** uh.

849. **SP2:** to decide the memorandum of understanding. What's it? Confidentiality agreement?

850. **ST2:** uh.

851. **SP2:** So how uh what is this is going to lead to? I have no idea.

852. **ST2:** OK that's fine.

853. **SP2:** So I don't know anyway if there's anything.

854. **ST2:** yeah yeah.

855. **SP2:** you are the first to know.

856. **ST2:** yeah yeah thank you for that but uh.

857. **SP2:** Yeah,.

858. **ST2:** Because you mentioned that I remember you mention that uh the project in Africa.

859. **SP2:** Yeah (.) I don't think you would fancy to go to Zimbabwe or Muzambig.

860. **ST2:** to visit it it's okay but to go to work there no.

861. **SP2:** yeah exactly I don't think they're really fancy doing that.

862. **ST2:** anyway maybe they are looking for uh because in this stage, I think they're still looking for some doingn some research rather than to I mean,

863. **SP2:** I I yeah I don't know. I don't know what they are looking for. Yeah.

864. **ST2:** Yeah,.

865. **SP2:** Yeah. So we'll see what they want to say.

866. **ST2:** OK. Thank you. Thank you for your time.

867. **SP2:** no problem so you need that uh this chapter five at least to make some head start on it.

868. **ST2:** yeah.

869. **SP2:** And and and and then at least you will have the whole picture of what this this is about.yeah.

870. **ST2:** And about rig So are you going to contact me tomorrow or shall I contact you.

871. **SP2:** I mean, yeah, if you if you have some time, you whatever you have sometime just dismantale the top phlange and and the diaphragm.

872. **ST2:** I Can do it any time.

873. **SP2:** Yeah. So when you do it, I you know, I want uh I want to have it.

874. **ST2:** OK.

875. For the record.

876. Ok thank you DR. Ali.

877. OK thank you see you

Transcript for Session Four (ST2-SP 2)

ST2: Dr Ali about uh like those calculations, if I make them in uh handwriting and put them in the appendix uh which better (do you think

SP2: no, you don't need to do the calculation like this in in uh (.)

when you present your work, we just present the table for volues (.)

that's what you need to do. You don't need to present (all the.

ST2: I mean in the appendix

SP2: Yeah. Yeah. You don't need to present. All the calculation is this

way you might uh you might say. Use this formula here (2.1) And then

I have the volues This thisand this is the table for the uh the

values (3.2) Is it set yeah (2.1) Okay ok make sure it is working

(4.1) So uh ok

ST2: If you Dr. Ali let's see what uh.

SP2: is that Chapter 4,.

ST2: yeah Chapter 4.

SP2: yeah so Chapter 4, the the prototype configeration and assembly. OK

Then the introduction and this is the bit you have added.

ST2: Yes.

SP2: OK, then we have four point two the design overview. OK. So

introduction, design overview points their the design Mechanical

springs and Material selection.

ST2: yeah

SP2: In this design overview section uh so, there is no no mention of the

29. intended uh the intended configuration at this stage.

30. **ST2:** no not yet.

31. **SP2:** Because we(know.

32. **ST2:** it's) only about about the material here.

33. **SP2:** the materials yeah (.) Four point for four point four 3 one Belows

34. and then configuration.

35. **ST2:** it is the introduction to to uh the types of belows and.

36. **SP2:** yeah

37. **ST2:** Because we have different types and.

38. **SP2:** yeah.

39. **ST2:** different manefacturing uh methods

40. **SP2:** and then the below charesterictics.

41. **ST2:** Yeah. From this point, because.

42. **SP2:** four three one two, uh four three.

43. **ST2:** if you make control it shows the the navigations uh.

44. **SP2:** yeah.

45. **ST2:** and then you would find them on the left

46. **SP2:** yeah yeah yeah I know I'm just just (6.4) oh ok So, uh and then the

47. table.

48. **ST2:** Yes it is the table for the

49. **SP2:** Yeah.

50. **ST2:** Yeah for the Description of I mean different different characters and

51. features of the belows.

52. **SP2:** Yeah.

53. **ST2:** So we can later decide which one is suitable for.

54. **SP2:** right.

55. **ST2:** Our application.

56. **SP2:** so uh and description of below properties, stiffness, temperature or

57. life expectancy the assembly method and the constraints configuration

58. Yeah. So. yeah, okay integrating belows in a sterling engine four

59. three one three uh four three four say, two, it's diaphragm now.

60. **ST2:** Yes.

61. **SP2:** so that's the belows ok uh the belows section and basically here is

62. simply describing the materials, shapes and things like that.

63. **ST2:** Yes. Then the diaphragm. However, in the diaphragm straightaway you

64. can see equations sizing and things like that. So. So it's on the

65. same form OK. So now it's the diaphragm materials ok (2.2)That's the

66. design and methodology the scheme's design is and the structure ok

67. (4.2) linear structure you might call it linear because they have

68. both linear.

69. **ST2:** yes.

70. **SP2:** diaphragm below structure Why diaphragm below structure

71. **ST2:** because I integrated two types two different types of materials or

72. components so we call it a diaphragm below

73. **SP2:** Yeah well (2.1) so this is (.) this is good, but this probably needs

74. uh needs to go to the (.) to the introduction (3.2) you need

75. something like this at the beginning, and then you (.) then you

76. describe each of those components (1.2) probably this section until

77. here might have to go right to point four two

78. **ST2:** (7.3).

79. **SP2:** because uh up to point (4.2) If you read the thesis, you will see

80. there is no indication what's going to be done and simply describing

81. (3.2) describing the components before we know or without even us

82. knowing what is going to come us as a design configuration (.) so the

83. design functions of this focus on the structural of the displacer of

84. power piston and that's the spring assembly were gradually evaluated

85. to modify to satisfy yeah (2.3) so when you are saying the assembly

86. so that's what you want to see in this section. What is this

87. assembly? So we want to start from a crude a crude configuration.

88. **ST2:** hmm.

89. **SP2:** like the one where you have a high below. We know we have displacer

90. We have the displacer. It is mounted on on vibrating components

91. whether it's a below or a spring. And then we have a diaphragm.

92. **ST2:** hmm.

93. **SP2:** It's then when you go (.) Then we don't know until the final design

94. That's the configuration.

95. **ST2:** Yeah.

96. **SP2:** Or maybe even the power piston or just another flexible membrane or

97. flexible spring (.) we don't know yet. So then you go describing each

98. component as you did. What is the choice for displace uh flex uh a

99. flexible component And then what is the choice for this? For the

power piston flexible components.

ST2: um.

SP2: So it's then when you delimit it if you want or you make (4.2) uh

your choice which one to use and you say we use bellows because of

this (1.5) but I think it is uh (2.1) is this how we did it

previously because (it chan

ST2: yeah I changed) it many(times.

SP2: Yeah) It's changed many times.

ST2: Yeah because sometimes I feel it's uh.

SP2: Yeah.

ST2: it is necessary to uh to talk about components first.

SP2: Yeah.

ST2: sometimes I feel that's to introduce uh.

SP2: Yeah.

ST2: because it's a bit uh (confusing.

SP2: I think we need I think we need that uh the figure here (.) we do

need we do need the general structure, what we want as a design. We

want it uh we know it's a free-piston Stirling engine We know the

different types (.) but we need that picture of general configuration

here so

ST2: So for example, if I start with the general general configuration.

SP2: Yeah.

ST2: Then to to move to the components and then to move to another type

maybe to call It's the (3.1) the design progress or.

124. **SP2:** yeah exactly yeah so I think I think that's what we need so we need

125. we need the general the general layout. So we have a displacer uh

126. with the displacer all you need to show just something like this

127. This is a spring and the spring is mounted onto the or attach to

128. displacer.

129. **ST2:** yes.

130. **SP2:** and then you will have another piston (5.7) again with a spring. It

131. could have just one or two. It doesn't matter as as uh.

132. **ST2:** yeah.

133. **SP2:** and then this is the bonus then it will have some kind of a load

134. (2.7) in your own drawings you must (.) you must look at load. You must

135. add some kind of load to make sure, you know your drawings are

136. complete.

137. **ST2:** yeah.

138. **SP2:** So So we have displacer and spring assembly (2.1) and then we have

139. the power piston and the spring assembly as well. It’s then when you

140. go describing the mechanical spring and material selection for each

141. of those components.

142. **ST2:** yeah.

143. **SP2:** So. So I think that we need we need this somewhere here right at the

144. beginning saying what we are trying to do.

145. **ST2:** OK.

146. **SP2:** And then by the end of the chapter, we have exactly define our

147. structure. So we moved from this one a different steps into the final

148. design, which is something like this with a bellow , with a bellow and

149. all kind of flanges in there (.) and then we use a diaphragm (1.8) so

150. again, that's valid uh It's a valid conclusion.

151. **ST2:** yeah.

152. **SP2:** So I think that is uh we need that we need some initial broad

153. configuration (2.1) and then you go at each step explaining using

154. some diaphragm using this bellows. I think you need even to. look at

155. the spring mechanic uh mechanical springs uh.

156. **ST2:** hmm

157. **SP2:** This is just a spring, compression, spring like this. I think

158. probably to touch a little bit into those as well in the materials.

159. **ST2:** Yeah, I did.

160. **SP2:** You did. All right. That's fine then. Yeah.

161. **ST2:** Different, different, different types of springs.

162. **SP2:** different types yeah because I did not see the pictures.

163. **ST2:** No I did not

164. **SP2:** Yeah. I didn't see the pictures here So you only uh in terms of

165. concentration of the workd only on bellows.

166. **ST2:** yeah but if you go to the mechanical springs you'll find that's

167. different types.

168. **SP2:** yeah.

169. **ST2:** I mentioned two different types of of, uh, I mean springs

170. mechanical springs and we are going using that.

171. **SP2:** Yeah. Yeah they are her yeah (2.1) so mechanical springs and material

172. selection uh mechanical springs are good examples so why didn't you

173. give some figures?

174. **ST2:** oh.

175. **SP2:** yeah. Some drawings of those, you know. Just to add into this list

176. some examples or something like that so uh showing different springs

177. you said plunders spring as well as Blauner like it's like a water

178. isn't it? Blauner?

179. **ST2:** Yes It's like a flat one.

180. **SP2:** Yeah oh, you mean this?

181. **ST2:** Yeah. This one.

182. **SP2:** Right. Right.

183. **ST2:** Because I think it's already been used in (stirling engine

184. **SP2:** Yeah. Yeah of course) yeah so plunger spring, all kinds of types of

185. plunger springs some of them used in sensors, uh, variable resistance

186. sensors.

187. **ST2:** That's quite small talk design this one.

188. **SP2:** Which one.

189. **ST2:** this one I mean this design is quite similar uh two distance and uh

190. **SP2:** is it?

191. **ST2:** But uh I mean different springs uh we replaced this design.

192. **SP2:** yeah.

193. **ST2:** with the with bellows but it is quite similar.

194. **SP2:** Now, it's a spring for uh for magnetic levitation

195. **ST2:** hmm

196. **SP2:** Let's take one. Something like this. Like this one.

197. **ST2:** Yeah.

198. **SP2:** I mean you don't want something very fancy all you need to show is uh

199. is that you uh you review the other types or you can get a smaller one

200. if you want.

201. **ST2:** yeah.

202. **SP2:** So it mechanical spring uh flat springs uh

203. **ST2:** yeah.

204. **SP2:** there is another type I came across once I forget its name anyway

205. that's enough (2.1) so if you find other types.

206. **ST2:** yeah.

207. **SP2:** Just put them in there.

208. **ST2:** ok.

209. **SP2:** now it's very good uh either you show them like this or you find in

210. literature (2.30 the uh an example of a stirling engine with the

211. spring.

212. **ST2:** yeah.

213. **SP2:** so insead of the spring uh you show the picture of the of the of the

214. engine.

215. **ST2:** Yeah, I see.

216. **SP2:** So I think that'll be that'll be better than you highlight.

217. **ST2:** Yeah.

218. **SP2:** You highlight the Stirling engine and free-piston system.

219. **ST2:** Ok.

220. **SP2:** Let's see the images (9.1) but but you would be uh you would have

221. done that in literature review isn't it. Is there anything in the

literature review.

ST2: there should be I think something.

SP2: Yeah So in that case, you could just refer. You can just refer to the

figure in literature review.

ST2: Yeah.

SP2: I mean if you do spring's here then you can also refer to literature review.

ST2: ok.

SP2: So that's fine.

ST2: Yeah.

SP2: so again as well as gas Spring's which is presented in chapter three

so after the literature review Yeah ok.

ST2: yeah

SP2: So that's the mechanical spring, the design overview the bellows then

uh then you went to So from mechanical springs into metal bellows.

ST2: yeah.

SP2: And then the configeration uh configurations of different types of

metal bellows.

ST2: hmm.

SP2: and Stirling engines. OK and then the diaphragm what is uh why uh

why the diaphragm the diaphragm is for the power piston or or for

the displacer

ST2: the power piston of course.

SP2: so that is for the diaphragm because you could mount your displacer

on a diaphragm as well so probably the diaphragm is again It's it's

it's part of a spring and I sort of update they offer. Okay. So you

analyze that uh diaphragm stiffness and frequency calculation Okay uh

Selected diaphragm for the proposed design.

ST2: Yeah

SP2: Right. So what is your evolution here.

ST2: (7.2).

SP2: So it's the evolution that is not there because we started with this

What is the uh what is the other configurations that comes in

between?

ST2: Yeah it is in section four

SP2: (3.2) so this should come before this should come before saying we

selected this diaphragm.

ST2: hmm.

SP2: Yeah. This is the uh you have already selected the final version.

ST2: But I mean the evolution Dr Ali for for the uh not the diaphragm it's

for the engine.

SP2: Yeah. Yeah.

ST2: the complete assembly of the whole engine.

SP2: Yeah the whole engine. But the whole engine we have uh (.) you have

listed the different types of springs bellows diaphragm and things

like that but we have not finalized the design.

ST2: Yes.

SP2: the design of the components.

ST2: yes.

SP2: you described the components (but you.

273. **ST2:** it's like the key component.

274. **SP2:** yeah yeeah, yeah. But not the final design (.) the final design will

275. be (.) will come after your you know the methodology and step by step

276. design.

277. **ST2:** Yeah.

278. **SP2:** So that it's after them. Then you say we use this type of diaphragm

279. these are the other parameters right then the schemes and concentric

280. structure.

281. **ST2:** yeah

282. **SP2:** you just need to add the load in that.

283. **ST2:** yeah.

284. **SP2:** and then Linear structure.

285. **ST2:** do you think the name is suitable for that

286. **SP2:** yeah yeah it is ok (.) and then the diaphragm bellow structure OK, so

287. we now I understand this. So that's the most final design.

288. **ST2:** Yeah. Because it's the progress of the design.

289. **SP2:** Yeah. Yeah. So it makes it makes sense. So the. So just this part

290. here has to move has to move after the. OK.

291. **ST2:** ok.

292. **SP2:** What about the bellow parameters you selected?

293. **ST2:** Yeah, it's in the tables as well.

294. **SP2:** is it here.

295. **ST2:** yeah.

296. **SP2:** then it has to again to move to (.) the final design yeah.

297. **ST2:** ok.

298. **SP2:** So both once you describe the final design, then all the parameters

299. for the bellows and full of data from have to go into that into that

300. section.

301. **ST2:** So you mean Dr Ali that's uh those parts should go to the third

302. **SP2:** Yes.

303. **ST2:** Scheme of the).

304. **SP2:** Yes. Yes. Yes.) Because that's the one you will say you selected for

305. the design.

306. **ST2:** yeah

307. **SP2:** And you designed it. And these are the parameters for the bellows and

308. for the diaphragm

309. **ST2:** yes

310. **SP2:** And then and then you go into the construction, so it makes it makes

311. quite a good like like a like a good progression from from the

312. initial set of initial general layout components, discrip uh or major

313. combos description, then (the evelution

314. **ST2:** the evolution

315. **SP2:** yeah and the configurations you selected the last one. Now the uh now

316. the design, the prototype design and construction, how it was how it

317. was done. the displacer and the component.

318. **ST2:** Okay.

319. **SP2:** So then you did the calculation. These are the size of the component

320. and the diapgragm piston and so on. And then the fabrication. How

321. they are one, isn't it?

322. **ST2:** Yes

323. **SP2:** Yes So that (.) to me this makes quite a good uh a good

324. **ST2:** structure

325. **SP2:** Yeah. It is a good structure. then displacer size and dimension. And

326. then again it would fit so because here you are doing even more

327. calculation on the bellows.

328. **ST2:** Yes.

329. **SP2:** So these equations should appear in the in the section and the

330. bellows not here.

331. **ST2:** hmm

332. **SP2:** Here you are applying those equations you are not uh not doing again

333. the equations.

334. **ST2:** yes

335. **SP2:** So once you have done the uh you have done or given these equations

336. in the section that you don't need any more to give here you are just

337. giving the parameters and design

338. **ST2:** ok

339. **SP2:** And then the final displacer data and power piston assembly

340. **ST2:** sorry Dr. Ali if you just go back

341. **SP2:** oh ok so you now talk again about solid power piston so that's so so

342. this so, right. So you have to have the general scheme. We have the

343. what we call it the Concentric the concentric type yeah

344. **ST2:** yeah

345. **SP2:** the concentric you have the linear

346. **ST2:** Yes.

347. **SP2:** The linear. And then

348. **ST2:** the diaphragm

349. **SP2:** the diaphragm So with the linear, let's look at the linear. That's

350. the linear

351. **ST2:** Yes

352. **SP2:** OK, so with, the linear and the diaphragm type the displacer assembly

353. is the same, isn't it?

354. **ST2:** Yeah more or less yeah

355. **SP2:** Yes. Yes, yes. So. So from this one you say the linear uh

356. **ST2:** Both of them. We are using the slide type.

357. **SP2:** Exactly. So. So, so. So you moved from the concentric into the

358. linear. And then you justify that the linear is easier to

359. manufacture.

360. **ST2:** Yes.

361. **SP2:** Yeah. So. So we uh in a way we selected the linear type.

362. **ST2:** Yeah

363. **SP2:** And from there then we have two designs. One is the solid displacer

364. or the piston uh the power piston using bellows as well.

365. **ST2:** yeah

366. **SP2:** and the other one is using the diaphragm.

367. **ST2:** No sorry Dr. Ali

368. **SP2:** yeah

369. **ST2:** No, no, We, we just have only one here which is using the diaphragm

370. We those uh designs.

371. **SP2:** yeah

372. **ST2:** We use it bellow with uh with power piston.

373. **SP2:** Right.

374. **ST2:** Then as because we faced some problems, some difficult to form to

375. operate this design.

376. **SP2:** Yeah.

377. **ST2:** So that's why we decided to move to diaphragm and (to do two

378. **SP2:** ok ok ok

379. **ST2:** So from slide piston

380. **SP2:** . Yeah.

381. **ST2:** to what's called uh to diaphragm piston

382. **SP2:** So this one using the diaphragm for both configurations OK, so sorry

383. So this is this is this is the

384. **ST2:** linear one

385. **SP2:** yeah This is the linear one. It was selected uh it was one of the

386. configurations that could have been manufactured. Yes.

387. **ST2:** Yes exactly Yes.

388. **SP2:** But but because of simplicity of the diaphragm. So the power piston

389. was replaced by a diaphragm.

390. **ST2:** Because, yeah, we faced major uh

391. **SP2:** yeah

392. **ST2:** major problems like. I mean, how to to seal the bounds space

393. **SP2:** yeah

394. **ST2:** and as a problem, it was I mean,

395. **SP2:** yeah

396. **ST2:** because of the uh the very high engine

397. **SP2:** hmm

398. **ST2:** It was wobbling (and the

399. **SP2:** So so so I want to see all that before the diaphragm
400.
401. structure. All that has to be explained here

402. **ST2:** What do you means sorry

403. **SP2:** anything about the solid power piston

404. **ST2:** oh ok

405. **SP2:** Has to be here once to go into the diaphragm bellow strucrue that's

406. it. Nothing uh That's your final design.

407. **ST2:** OK I understand.

408. **SP2:** Yeah.

409. **ST2:** OK.

410. **SP2:** So anything about the uh, that cylindrical cylindrical powered piston

411. and bellows has to slop here. That's your final place where you can

412. put them.

413. **ST2:** ok

414. **SP2:** So all that. Anything else, anything down here will has to be moved.

415. **ST2:** ok

416. **SP2:** So anything here has to be moved up

417. **ST2:** OK because that's Dr. Ali I put them here because it's like one or

418. like type one of the components of the engine.

419. **SP2:** Yeah,

420. **ST2:** and then you're right. We we need to mention like a key I mean, key

421. components to it. mention them separately.

422. **SP2:** Yeah. Yeah. So then(

423. **ST2:** and to to) leave this this this part for the general general parts

424. **SP2:** Yeah.

425. **ST2:** Yeah. OK. even for this one diaphragm one.

426. **SP2:** OK, so that's the design So once we have done that So it's just the

427. description and how this is was built and the powered piston

428. application and then the Chapter 5. So anything else you want to add

429. into chapter four (2.3) I think that's basically that is all sort of

430. the description of the how it was made.

431. **ST2:** Yeah, I think. Yeah. Just one thing Dr Ali I did not agree with you

432. which is I did some calculations how to how I uh we decided to choose

433. this just size of uh of the displacer

434. **SP2:** yeah

435. **ST2:** And the uh

436. **SP2:** yeah

437. **ST2:** the cylinder.

438. **SP2:** Yeah.

439. **ST2:** So what I did actually uh first uh initially I start with the design

440. or the size of bellows.

441. **SP2:** Yeah.

442. **ST2:** I mentioned that's a.. I did many about I think I mentioned five uh

443. five sizes of the available bellow in shelf.

444. **SP2:** Mm hmm.

445. **ST2:** And I did some calculations.

446. **SP2:** hmm

447. **ST2:** Then I moved to the calculations for the cylinder.

448. **SP2:** Yeah.

449. **ST2:** And I mentioned that, uh, we uh we have chosen the bellow matching

450. the available cylinder we have.

451. **SP2:** Yeah.

452. **ST2:** So what I I used for the cylinder I use it. I mean there's two type

453. uh two eqution to be used.

454. **SP2:** Yeah yeah

455. **ST2:** West and uh and pillar equations.

456. **SP2:** hmm

457. **ST2:** And uh. From the literature review I found that pillar is more uh is

458. simpler.

459. **SP2:** Yeah.

460. **ST2:** It's more efficient for different sizes.

461. **SP2:** Yeah.

462. **ST2:** So west is maybe for certain sizes. That's why we decide to use this.

463. **SP2:** Yeah.

464. **ST2:** This equation. So what Ihave. I have I mean uh I have how many watts

465. we for the cylinder

466. **SP2:** hmm

467. **ST2:** which is about 1 watt from.

468. **SP2:** Yeah.

469. **ST2:** From the simulation.

470. **SP2:** Yeah

471. **ST2:** . Based on one watt

472. **SP2:** hmm

473. **ST2:** one watt up for power.

474. **SP2:** Yeah. I calculate the volume.

475. **SP2:** Yeah.

476. **ST2:** Swift volume

477. **SP2:** yeah Given a frequency and pressure.

478. **ST2:** Yeah. frequencyit's it's known between 10 and 20

479. **SP2:** yeah

480. **ST2:** and I took 20 plus it's 20 because I found it is more realistic for

481. **SP2:** yeah

482. **ST2:** the calculations. And as you go to the I mean the to the the graphs.

483. **SP2:** hmm

484. **ST2:** Which is mentioned that ten hertz

485. **SP2:** hmm

486. **ST2:** , it needs to be very uh. I mean. I mean a large number of bellows

487. **SP2:** . Yeah

488. **ST2:** That's why we move to uh to20 anyway.

489. **SP2:** yeah

490. **ST2:** From this point from the the volume swapped volume. I can decide the

491. uh. I mean the out or the inside the inside of the diametre of the

492. cylinder.

493. **SP2:** yeah

494. **ST2:** So we choose it. I mean the bellow because (we have

495. **SP2:** according to) that

496. **ST2:** Yeah.

497. **SP2:** Yeah, yeah. Yeah.

498. **ST2:** I found. Honestly I find it's like uh ninety two point two

499. **SP2:** millimetre.

500. **ST2:** millimetre.

501. **SP2:** yeah

502. **ST2:** So the available one is uh

503. **SP2:** 95

504. **ST2:** 95.

505. **SP2:** Yeah. So I mean I mean uh this explanation you could present it in a

506. flowchart as well if you want.

507. **ST2:** OK.

508. **SP2:** Yeah. If you want. So basically the flowchart. You don't do any

509. calculation, just say the steps by which you do your uh your

510. selection So for example initially uh uh select select bellows uh

511. bellows diameter uh then uh no no , first first is the power pis uh

512. the output the power output

513. **ST2:** hmm

514. **SP2:** using Biehl equation.

515. **ST2:** OK,

516. **SP2:** so from which you, uh, defin uh then you need to define

517. **ST2:** the swapped.

518. **SP2:** I think I think initially you need to define define frequency

519. pressure. Yeah,

520. **ST2:** yeah.

521. **SP2:** Then from power output using Busiek equation you find the swapped

522. volume V. And then the diameter.

523. **ST2:** Yes.

524. **SP2:** Yeah. V and then diameter. Then form uh from the diameter when you

525. find that diametre Now here is you need to select select bellow size

526. that's going to exist.

527. **ST2:** hmm

528. **SP2:** No sorry this is now it's test. It's a test. Do you have this the

529. below size of this diameter.

530. **ST2:** hmm

531. **SP2:** So below size. bellows size No. If you don't then select. No, I

532. don't have the exact diameter. Select. Select bellows size. Or

533. diametre From manufacturers uh manufacture. or the closest basically

534. manufacture this. Okay.

535. **ST2:** yeah

536. **SP2:** Then once you do this then you have to go and and do the calculation

537. again.

538. **ST2:** Yeah exactly

539. **SP2:** So you go under the calculation.

540. **ST2:** ok

541. **SP2:** Do check uh check on output or other parameters

542. **ST2:** the cylinders

543. **SP2:** So

544. **ST2:** if yes.

545. **SP2:** If yes uh If yes, then simply.

546. **ST2:** It's OK. Yes, you can identify. I mean, how many. I mean like how

547. many configurations.

548. **SP2:** Yeah,

549. **ST2:** the stroke and the (other cylinders

550. **SP2:** yeah yeah so) both of these and then end up here. Now if if no then

551. select one form the bellows from the manufacturer list and then here

552. determine bellows characteristics.

553. **ST2:** ok

554. **SP2:** yes bellows characteristics or parameters. So we have those

555. parameters. And then let's not. Isn't it?

556. **ST2:** Yeah almost yeah I think

557. **SP2:** So. So that's just for the bellows.

558. **ST2:** Yeah it's for. the bellows and displacer

559. **SP2:** Yeah. You could add other things if you want. You can make your

560. flowchart as you know design a flow chart. What are the steps to

561. follow in a flow chart. I'm not sure how is going to

562. **ST2:** I'll check it

563. **SP2:** whether you can make it as detailed as you can or

564. **ST2:** yeah

565. **SP2:** You don't need to put any equations in that. You just put uh mention

566. what what

567. **ST2:** yeah the process.

568. **SP2:** Yeah. the process yeah

569. **ST2:** the outline of the design

570. **SP2:** Yep. Yeah. So. So is that is that all for uh I think If you do this

571. it might simplify a lot of things

572. **ST2:** yeah

573. **SP2:** in (terms of

574. **ST2:** and should) be going in the uh in the beginning I think.

575. **SP2:** Yeah, yeah,

576. **ST2:** so (for someone to see it

577. **SP2:** yeah. Yeah, yeah, yeah) it should go into the beginning I think

578. Yeah, yeah.

579. **ST2:** maybe the first page.

580. **SP2:** No, not the first It's in the second. It's in the introduction. It is

581. in section two

582. **ST2:** OK.

583. **SP2:** It's where there is this the initial diagram.

584. **ST2:** ok

585. **SP2:** Yeah. If it has to goit has to go there but again in that diagram we

haven't said anything about the bellows So it might not be there at

all.

ST2: oh

SP2: It might be somewhere uh just before uh

ST2: before the calculations,

SP2: before the uh where uh where you said that the evolution of the

design (3.2) so maybe just before that

ST2: ok

SP2: because that's where you are looking at different sizes

ST2: ok

SP2: or maybe even even maybe it's in the in the design stage. Maybe it's

it's here. Once you have selected the diaphragm. Because here you

have just selected the configuration

ST2: hmm

SP2: you haven't said anything about dimensions

ST2: hmm

SP2: It's when you start looking at the dimensions, maybe that goes into

your final design, how you did your do the uh what are the steps you

followed to do your final design?

ST2: But even for this one, we already produced this one and after

ordering the bellows so honesty only this configuration. We haven't

done in the workshop, which is like uh skitch

SP2: yeah

ST2: sketch in paper.

SP2: Yeah, but in the thesis I just want to see sketches of the idea that

611. the moment.

612. **ST2:** Okay

613. **SP2:** all your calculations have to be here in the final design

614. **ST2:** Okay.

615. **SP2:** The first the first prospection if you want is just finding the

616. configuration we want then did the calculations, the numbers and

617. things like that have to be here.

618. **ST2:** ok

619. **SP2:** So at this stage untill this stage we don't know what is the size

620. That's that's the way you present it in the

621. **ST2:** ok

622. **SP2:** It doesn't matter what we did in the in in the work, but in the in

623. the way to present it all it his prospecting, what type of design you

624. are going to do and the calculation has to appear here

625. **ST2:** OK

626. **SP2:** ok so that's Chapter 4 (6.3) so Chapter 4 is it about is all about

627. the prototype design. Then Chapter 5 is testing that prototype (4.2)

628. experimental testing of the prototype I think that's more reflect

629. more on the content, test preparation and instrumentation.

630. **ST2:** yeah

631. **SP2:** Right. So the first part I think you should be the description of the

632. test rig and experimental uh experimental procedures this chapter now

633. this chapter is only about the diaphragm uh the final design

634. **ST2:** yeah

635. **SP2:** it is only about anything else which is not related it to It has to

636. go into the previous chapter. This is only about what final design

637. nothing else.

638. **ST2:** ok

639. **SP2:** So nothing about concentrate or anything. That's what what you're

640. testing.

641. **ST2:** So from this point,

642. **SP2:** yes. So it's this from this point ok so (2.1) yeah so what I want in

643. this section simply to describe the test rig how it was made, so the

644. frame of the test rig, the support onto the frame, the engine all

645. different mounted on the frame. using the electric heat source and

646. then we revert to the gas heat source.

647. **ST2:** yeah

648. **SP2:** Difficulties in sealing the air inside the engine because we had

649. leaks how those leaks were detected using whatever soap or water

650. bubbles or whatever so the soap bubbles needs to be mentioned So the

651. displacer was touching the walls have you emotion that in here

652. **ST2:** I think yeah

653. **SP2:** Yes. So the alignment of the displacer with the cylinder

654. **ST2:** yeah

655. **SP2:** We uh if you remember, we modified the way the expansion space was

656. connected into the compression space uh the tube was initially up the

657. top and then changed into the bottom. I hope you have some pictures

of that.

ST2: I think I have

SP2: if you have that then it needs to go into the modification section.

ST2: hmm

SP2: So this modification part, you need to mention that. So we if you

remember even we changed the outside cylinder.

ST2: Yeah. We moved from close to to to open cylinder because of the

difficulties of the alignment

SP2: yeah so that's needs to go there. So modifications So

ST2: so honestly (I uh I

SP2: you have) done that

ST2: Yeah it is in the previous chapter

SP2: in the previous chapter

ST2: Yeah. Chapter four. I mentioned that we moved from close to close

cylinder to open cylinder and why we move to this one

SP2: yeah but that's testing that's during the testing

ST2: So

SP2: it has to it has to go here

ST2: take them back ok

SP2: Yeah it has to go here. So it is in the testing phase that you

discover that you have built the prototype. Now it's in the testing

phase. We found there are problems. So now that's where the

modifications are

ST2: ok now I understand

SP2: Yeah.

ST2: So so what I have to do now since we move to the diaphragm and

684. decided to use this final configuration?

685. **SP2:** Yeah.

686. **ST2:** everything after this stage I have to put in this chapter.

687. **SP2:** Yeah. So. So we designed the diaphragm these are the calculations uh

688. this is the configuration. We took it from the workshop into the lab

689. (3.1) anything what happened after that.

690. **ST2:** So including the assembly

691. **SP2:** what do you mean by including the assembly

692. **ST2:** because the assembly was done in the lab it is not in the workshop I

693. mean, the setup of the engine and what we did, we give the design to

694. the workshop

695. **SP2:** yeah

696. **ST2:** We took we took parts We did not uh we didn't take the whole engine

697. So we we did the assembly of the engine in the lab.

698. **SP2:** That's fine uh part of the final design.

699. **ST2:** Yeah

700. **SP2:** so in the final design, your drawings. My drawings is full with all

701. the components together

702. **ST2:** yes

703. **SP2:** in the lab, it's assembling this assembly to modify things

704. **ST2:** ok

705. **SP2:** that's where the lab is. So in the lab, you uh you took it apart many

706. times to modify things one of those modifications was the cylinder

707. was the the connections between the the exposure compression space

708. **ST2:** and even we we we used to initially we used one one tube. Then we

709. moved to two, two tubes

710. **SP2:** Yeah, all of that. It's part of the modifications section

711. **ST2:** OK

712. **SP2:** so and then support it with pictures.

713. **ST2:** OK.

714. **SP2:** that that's that's that. It's it's it's only then you overcome or you

715. overcame the problems. So that's basically it. Uh. During the testing

716. phase. But during the testing phase a lot of things happened.

717. **ST2:** OK.

718. **SP2:** Yeah

719. **ST2:** I understand now

720. **SP2:** so uh so by doing those modifications that you moved into making the

721. engine work

722. **ST2:** ok

723. **SP2:** So that's that's all part of the experimental work.

724. **ST2:** ok it is already I have some materials

725. **SP2:** Yeah, yeah. It's just moving. Moving the materials into into into

726. place.

727. **ST2:** maybe need to add more details because.

728. **SP2:** Yeah,

729. **ST2:** honestly I haven't mentioned everything so maybe I have to.

730. **SP2:** Yeah. Yeah, exactly. So all that just just put ideas uh just right

731. the main thing here. You want to cover everything. You don't want to

732. miss anything of the work you have done.

733. **ST2:** Yes.

734. **SP2:** because you have done a lot of work (.) while you are at the lab

735. It's easy to modify the things, but you get you know, if you don't

736. write them, you forget. So. So if you mention that doesn't matter

737. where you mention it as long as you mention it. We can find it and

738. put it in the right place.

739. **ST2:** OK.

740. **SP2:** So basically then the experimental work I think this needs some like

741. uh modifications just this section see how to highlight the best of

742. those uh

743. **ST2:** anyway, I'll try to to I mean, to put the right figures.

744. **SP2:** Yeah. Yeah, yeah. put as much uh put the figures in there then we

745. select we see which one is is uh

746. **ST2:** ok

747. **SP2:** is worth keeping and those which might need to be deleted. So what I

748. would do now is uh if you just some add something on what we just

749. discussed then we need to fix a meeting for next time, a slightly

750. longer meeting probably right next I am still busy with uh so I'll

751. give you probably two weeks to finalise this and then we will meet on

752. uh and then you meet on Tuesday, the 21st and it would be Ramadan so

753. do you want some morning or afternoon

754. **ST2:** I prefer morning

755. **SP2:** so

756. **ST2:** like about 10 or something?

757. **SP2:** I have a meeting at 10 already

758. **ST2:** even 11 it is ok

759. **SP2:** So it'll be half-past eleven I have a meeting probably until

760. eleven. So if we say half-past eleven Yeah to let's say 2 o'clock

761. **ST2:** Is it Tuesday 20th or

762. **SP2:** 21st,

763. **ST2:** 21st

764. **SP2:** yeah I'll send you if you want as an appointment.

765. **ST2:** Okay.

766. **SP2:** OK. So but you have not added too much to Section 2, Chapter 5. I

767. think you need to add all those work you have done modifications and

768. testing I think you have not really you are not doing justice to

769. yourself. You have done a lot of work and it is not there

770. **ST2:** ok I'll see what I can do to add as much as

771. **SP2:** Yes, just put put ideas even if they are not correct. Just put as

772. much as. The main thing is we need to know when we have a meeting we

773. want to know that something has been done that may isn't set properly

774. so we can modify it.

775. **ST2:** What about the conference in Newcastle because they extended the

776. deadline? I'm lucky because they extend it to 20th of this month so

777. **SP2:** twentieth of June

778. **ST2:** Yeah.

779. **SP2:** I mean, we could probably do small modification of the paper we have

780. already with the HPC.

781. **ST2:** Okay.

782. **SP2:** I am not really that uh think about conferences anymore haha So I

783. mean whatever you want.

784. **ST2:** I think the main point for me actually just to meet maybe some

785. people.

786. ST2: Working stirling and maybe to share some new ideas.
787.
788. SP2: yeah.
789.
790. ST2: And it could be the guy from France is coming up we'll see how it goes.
791.
792. SP2: you can just send him an e-mail and say haha how is your progress
793. with uh the stirling engine.
794.
795. ST2: hahah yeah It's a chance, (actually if.
796.
797. SP2: Yeah, I mean, it's good. It's a conference which, you know, in the
798. same area.
799.
800. ST2: Yeah.
801.
802. SP2: Yeah. So we would meet on so Yeah so we are not meeting until the
803. twenty first. So if I have some time I not promising anything I might
804. just look at how to modify the existing paper (2.1) and uh and maybe
805. just
806. ST2: ok maybe I'll try to do something and.
807.
808. SP2: yeah.
809.
810. ST2: send it to you.
811.
812. SP2: Because it's only five pages. Four or five pages isn't it.
813.
814. ST2: For the stirling.
815.
816. SP2: Yeah.
817.
818. ST2: No, it's. I think maybe up to eight.
819.
820. SP2: Really.
821.
822. ST2: yeah.
823.
824. SP2: Is bigger.
825.

826. ST2: Yeah. it's bigger Yeah they are accepting that.
827.
828. SP2: yeah
829.
830. ST2: and then the other thing Dr. Ali it is a chance uh even they have
831. like an exhibition. So.
832.
833. SP2: Yes yeah.
834.
835. ST2: so It's a chance if you want to take the prototype and to make it
836. square.
837.
838. SP2: To take it there.
839.
840. ST2: Yeah. What do you think.
841.
842. SP2: um I am not sure to take it or not.
843.
844. ST2: OK, so anyway so I have another thing to do, actually, which is the
845. presentation for this conference.
846.
847. SP2: Oh, yes, I forget about that.
848.
849. ST2: Yeah
850.
851. SP2: I'll probably I'll put a few slides there and I would present it
852. myself.
853.
854. ST2: OK.
855.
856. SP2: I think I would do that yeah It's 29, isn't it?
857.
858. ST2: uh.
859.
860. SP2: twenty eight or twenty seven or twenty nine.
861.
862. ST2: twenty seventh I think.
863.
864. SP2: twenty seventh yeah.
865.
866. ST2: You would be here or.
867.
868. SP2: I would be here Yeah. So let me just put it in my calender.
869.
870. ST2: OK. it is good It gets me (time to
871.
872. SP2: Yeah yeah) I think you need to focus on the uh on the thesis rather
873. than uh other
874.
875. ST2: So what about Dr. Ali uh Because, you know, it's for me the deadline
876. is uh the decline is first of October for the submission
877.
878. SP2: For the submission, yeah

879.
880. ST2: Yeah.
881.
882. SP2: So, no, no, I think I agree. Now you have most of the uh
once these
883. two chapters are finished and then you left. with literature
review
884. introduction. I think you should be able to finish by uh way
way
885. before that.
886.
887. ST2: Yeah, because, you know, and my visa as well is in the
thertyith of
888. uh expires in the thertieth of uh Not October uh November.
889. SP2: November.
890.
891. ST2: November so.
892.
893. SP2: That might cause some problems because if you take uh you
need to be
894. uh to submit before then for you to be able to renew it.

895. ST2: I don't want even to renew honestly .
896.
897. SP2: oh hahaha.
898.
899. ST2: honestly, I wish if I could finish it before before even to
900.
901. SP2: Well, I mean, in that case let's aim to finish the thesis
by, say,
902. end of August and so and then the viva will be around
September.
903.
904. ST2: Yeah. If it's september it would be good.
905.
906. SP2: Yeah.
907.
908. ST2: and do you think it's uh because you have a holiday. I
think during
909. summer.
910.
911. SP2: Yeah I have. I have. I'll be probably around away for three
912. weeks in
913. August.
914.
915. ST2: August. Yeah.
916.
917. But I think we need uh before I go away we need to make
918. sure that you are only left with uh you know light
919. touches in terms of modification and things like that
920. rather then the main chapters so these two chapters
921. needs really to be finished
922. ST2: yes
923. Sp2: uh very quickly
924. ST2: These chapters honestly and the conclusion chapter
925. SP2: Yeah and the conclusion yeah so then you left with the
926. literature review and you already have lots of material
927. in the (literature review
928. ST2: yeah but) honestly (0.3) I think (.) I need to update

it and I need more details really around (.) I mean about the sterling engine uh I feel it NOW because when I wrote it it was the first year and

SP2: Yeah so. So. So with that chapter It could be. It couldn't be broken down into two sections. One on simply on energy systems in general.

ST2: hmm.

SP2: Whether it's solar, whether it's its energy systems.

ST2: yeah.

SP2: Or generation. And the other one will be on Stirlings.

ST2: Yes.

SP2: so It could be broken down into two sections.

ST2: Yeah.

SP2: But the main focus really is these two chapters and then later on the introduction and conclusion.

ST2: Yes.

SP2: So that's the really main focus at this stage.

ST2: yeah

SP2: If if really you do a little bit of more work before our next meeting, then then we will look at it the next meeting. Modify things. And hopefully by the end of this month, you should aim you'll have some dates, say the end of this month. I'll conclude these two chapters.

ST2: OK.

SP2: If you do this, then then you left over July to modify the literature review. Or maybe even go to the conclusion and discussion. But that's not a long chapter anyway uh conclusion and discussion is only five, six pages (2.4) so it's not a long chapter.

ST2: ok do you mean five, six pages enough for conclusion.

ST2: Yeah yeah more than enough yeah.

ST2: because I feel sometimes some people they uh they maybe make it's like ten uh ten pages or even more.

978.
979. SP2: Well I mean it depends. But usually it's very, very short.
980.
981. ST2: Hmm
982.
983. SP2: and then over July if you tidy up the introduction and the literature
984. review. So by end of July we should have uh like the first draft.
985.
986. ST2: Yes.
987.
988. SP2: and then it probably just look through it quickly and see where where
989. the gaps are to add If there is anything distinct.
990.
991. ST2: yeah.
992.
993. SP2: So really, if I if I feel but before I go on holiday that there
994. is enough there too for a first draft, then I would start contacting
995. ane external examiner in order to appoint one in September.
996.
997. ST2: And do you think it's enough time? One month. One month or
998. maximum maybe two months.
999.
1000. SP2: what do you mean by.
1001.
1002. ST2: I mean, if we suppose we uh I'm going to.
1003.
1004. SP2: Yeah,.
1005.
1006. ST2: I could.
1007.
1008. SP2: Yeah,.
1009.
1010. ST2: I submitted my my thesis by the end of August so
1011.
1012. SP2: end of July we want the first draft by the end of July.
1013.
1014. ST2: ok.
1015.
1016. SP2: To me. You want to say, look, I. I have the first draft now
1017. complete by the end of July. You send it to me for correction.
1018.
1019. ST2: ok.
1020.
1021. SP2: That's what I want. Final draft or so the first draft, complete
1022. with all chapters, references, introduction, everything this is my
1023. first draft. Look at it.
1024.
1025. ST2: ok.
1026.
1027. SP2: because when you go to university, say, I want to submit, they
1028. will say have you done all this? Yeah.

1029.
1030. ST2: Yeah.
1031.
1032. SP2: So that's what I want is first draft with all its components
1033. and they look at it as a whole. I know what is in there already
1034. because I'm going through chapters but once I see this all in one
1035. place that it would give me the confidence to go and get an
1036. external examiner.
1037.
1038. ST2: ok.
1039.
1040. SP2: So the external examiner we could do probably something like
1041. the before the 20th of September.
1042.
1043. ST2: ok.
1044.
1045. SP2: So we'll do something about the, uh, before we start
teaching
1046. basically
1047.
1048. ST2: Yes. Yeah. It could, it could. It will be good time for me.
1049.
1050. SP2: Yes. So you have you have Ramadan now it's it's not easy.
1051.
1052. ST2: Yeah but I have to do something.
1053.
1054. SP2: Yeah because it becomes slightly difficult.
1055.
1056. SP2: Yes. Unless you want to work during the night again but but
1057. when is the night hahah
1058.
1059. ST2: there is no night haha
1060.
1061. SP2: no night exactly haha.
1062.
1063. ST2: if you want to take a copy of that uh.
1064.
1065. SP2: that's all right I just want to save this where do you want
me
1066. to save it on your drive
1067.
1068. ST2: No you send it to me by email.
1069.
1070. SP2: oh ok I'll I send it to you then.
1071.
1072. ST2: I met ahmed his name i think.
1073.
1074. SP2: oh yeah.
1075.
1076. ST2: I met him just today for first time.
1077.
1078. SP2: Right. Right.
1079.
1080. ST2: And the first time I know he's.
1081.
1082. SP2: He passed his viva the last week.
1083.
1084. ST2: yeah a couple of days ago.
1085.

1086. SP2: yeah yeah with only some changes.
1087.
1088. ST2: All right