Investigating Future Selves and Mental Imagery Techniques with EAP Learners

Saadia Hasan

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Abstract

This research consists of two studies, designed to investigate and further our understanding of the role of vision in enhancing L2 learners' motivation. Conducted with EAP learners through two distinct studies, this research illuminates language learners' aspirations as well as the more practical application of imagery techniques in L2 settings.

Study 1 delves into the intricate narratives of EAP students' Ideal L2 Selves, revealing robust visions across diverse domains such as career, travel, and familial contexts. Study 2 advances this exploration by evaluating the efficacy of three distinct imagery techniques—LSRT, written scripts, and audio scripts—aimed at enhancing imagery ability and motivation among EAP students. Through a mixed methods approach, combining quantitative metrics and qualitative insights from participant journals and questionnaires, the study elucidates nuanced outcomes. Despite some challenges, the intervention led to increased self-belief, positive emotions, and metacognitive awareness; highlighting the potential benefits of imagery interventions in language learning.

Overall, the thesis advocates for the incorporating of structured and personalised imagery interventions in language education. Mental imagery can boost self-confidence and motivation in L2 students, but its effectiveness varies based on individual preferences and learning styles. Since imagery and ideal selves are highly personal, techniques should be adaptable to accommodate learners' unique characteristics and preferences. Educators are encouraged to consider the varying impacts of different imagery techniques and also to utilise these insights when designing curriculum enhancements.

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Chapter 1 Introduction

1.1 Origins of this Thesis

I have always been attracted by the concept of motivation, but it was during my early days of teaching English as a Foreign Language (EFL) that I specifically came across the idea of vision as a motivator. This discovery was sparked by a book authored by the renowned conductor Benjamin Zander. In this book, Zander described an exercise where he asked his students at the beginning of the term to write a letter dated in the future, starting with "Dear Mr. Zander, I got my A because…" (2002, p. 27). Remarkably, every student in Zander's class went on to achieve an A grade by the end of the year. Zander termed this approach 'creating possibility', where students envisioned themselves achieving an A from the outset of their academic journey and turned this possibility into reality. For myself, as an EFL teacher, often faced with unmotivated groups of young learners, integrating such possibilities into my language classroom was fascinating, thus igniting my interest in the power of vision.

We are familiar with the idea of 'vision' for creating a mental picture of a desirable future, as is witnessed by its popularity in business, sport, politics and self-development psychology. Strong vision is considered a prerequisite for strong leadership and success; in the corporate world, this process is referred to as 'visioning', with vision statements produced by businesses to define where they are heading. In the political arena, politicians also opine their visions for their states, a particularly emphatic example being the vision that Martin Luther King painted of a racially equal USA ('I have a dream').

Coincidentally, at the same time, the power of vision was manifesting in my own life. In 2012, I enrolled in an MA TEFL program at the University of Birmingham. As a single parent of a young child, returning to education after a significant hiatus, I held no aspirations for a high grade, aiming rather just to complete the course. So, I was surprised when my MA tutor, Dr Crayton Walker, inscribed in bold capital letters on my first assignment: 'Potential for Distinction'. Later, reflecting back, I realised that upon receiving this feedback, a seed of a vision had been planted, and that I subconsciously elevated my efforts, ultimately achieving the distinction that my tutor had foreseen. And then, during my quest for a dissertation topic, I serendipitously stumbled upon the work of Professor Zoltán Dörnyei, and specifically his motivational model known as the L2 Motivational Self System (2005, 2009).

The L2 Motivational Self System (Dörnyei, 2005, 2009) recognises future self-guides as key players in shaping and affecting language learners' motivation, and identifies the Ideal L2 Self as a powerful motivational force. Intrigued by this framework, I chose to explore the impact of visualising the Ideal L2 self on EAP students' presentation skills for my Masters dissertation. Whilst immersed in my dissertation, a vision of further studies in this field began to take shape. One afternoon, toward the end of my MA, I tentatively reached out to Professor Dörnyei via email, fully expecting that a scholar of his stature would not have the time to respond. Fortunately, I was wrong; and thus began the initiation of this doctoral journey!

1.2 Focus of this Thesis

I was pleased to see that there was a considerable amount of research being conducted on the L2 Motivational Self System (L2MSS). However, from the beginning, my own interest lay in the practical application of vision in the classroom, and it appeared that whilst much theorising on the L2-MSS had occurred, its practical implementation had been considered less so. Therefore, my first objective was to experiment with vision building activities in the classroom, or as Zoltán called it: "to get my hands wet". This prompted the design of the first study in this thesis, which is a content analysis of language learners' visions in order to consider what learners actually imagine when they envisage an idealised L2 future. I wanted to understand more about the nature of learners' visions: How did they imagine themselves using the L2? What did their vision consist of? Who were the learners' Ideal L2 Selves?

As my research and reading progressed, I started veering towards the examination of mental imagery. Vision is manifest in the form of concrete mental images of the future. In other words, mental imagery is the medium that enables language learners to visualise their future selves. Although vision and imagery are sometimes used interchangeably, my understanding, based on the imagery literature, is that vision is one of the functions of mental imagery (other functions include visualising descriptions, reminiscing about the past or memorising information {see Chapter 3 for full discussion}). Therefore, it is important to consider mental imagery as a phenomenon in its own right. What is mental imagery? How does it function? For what purposes might it be utilised? Does everyone use mental imagery? These questions inspired a large part of my reading and this is reflected in the literature review.

As I read, I also learned that mental imagery is an ability that varies amongst people. Whilst the majority of people can create imagery, there are some who are unable to picture anything in their mind's eye, and others who have such vivid mental imagery that it appears similar to reality. Adam Zeman, a professor who has led research in this area, estimates that 1% of the population is unable to create mental images, i.e. is aphantasic (Zeman, 2024). This led to the striking discovery that I myself found it difficult to create mental pictures -for example, I could not visualise any of my family members' faces… or indeed anything else! And so, I began to question the ability of my students to create a vision: if they were unable to visualise, or were visualising images that were vague and fuzzy, how could they create a powerful and compelling vision of a future self? Thus, my interest in imagery ability grew, and the second study in this thesis, whilst remaining within the domain of L2 vision, focuses more specifically on experimenting with methods which aim to strengthen the vision of the Ideal L2 Self. Prior to this, Chapter 4 provides a comprehensive review of imagery ability and techniques that have been used to enhance it.

As this section outlines the focus of this thesis, it is also pertinent to note that both studies are carried out within the context of English for Academic Purposes (EAP) at a UK university. International students have become an increasingly important part of the university landscape in the UK, and the UK an increasingly desirable destination. This is evident when we consider that whilst the UK Government had aimed to recruit 600,000 international higher education students by 2030 (HESA, 2019), remarkably this objective was achieved ten years earlier. Official figures from the UK government showed that by 2021-22, there were over almost 680,000 international students studying at higher education institutions, accounting for a substantial 24% of the total student population in the UK (HESA, 2023). Although all of these international students do not undertake English language training, many do, and as such these students represent an important part of the English Language Teaching (ELT) market. This can be seen in the fact that the majority of universities now offer pre-sessional summer programmes (PSPs), as well as in-sessional EAP throughout the year.

1.3 Organisation of this Thesis

Any L2 motivational intervention that aims to apply vision is rooted in mental imagery. Therefore, the thesis begins with a literature review on mental imagery in Chapter 2. This chapter aims to build on and benefit from the abundant and well-developed research base on imagery, examining various properties of mental imagery to enhance our understanding of this phenomenon.

Chapter 3 explores the practical applications of imagery in different disciplines and also considers their implications for L2 learning. Imagery ability is then explored as a separate concept in Chapter 4, with a view to enabling more optimal application of imagery in L2 contexts.

Chapter 5 focuses on the L2 Motivational Self System (L2MSS) with a specific emphasis on vision and the Ideal L2 Self. It provides a summary of key research on vision interventions and the dynamics of imagery in use, while remaining closely aligned with the practical vision-oriented theme of this thesis

Following this, each of the two studies are presented as stand-alone chapters. The first study, detailed in Chapter 6, is a qualitative content analysis of 25 language learners' visions, examining what learners actually imagine when they envisage an idealised L2 future. Chapter 7 presents the second study, a mixed methods investigation with 35 language learners, investigating the impact of three imagery enhancement techniques on both imagery ability and motivation.

Although both of these studies incorporate discussions and limitations, Chapter 8 synthesises the key themes from both studies and discusses their pedagogical implications. It also suggests avenues for future research, and concludes the thesis with final closing remarks.

Chapter 2 Mental Imagery

2.1 Introduction

Fortunately, we have a rich knowledge base on mental imagery, and the primary aim of this chapter is to provide an overview in order to enable a broader understanding of some of the mechanisms underlying imagery. This is not a simple task; mental imagery is a well-studied cognitive phenomenon, and has been subject to a variety of approaches and theoretical accounts. In light of these differential approaches, this chapter will consider imagery through a variety of perspectives: *descriptively*, through its key properties; *functionally*, through its usage and application, and *neuroscientifically*, by considering its mechanisms in the brain. Prior to this, the chapter will commence with a historical perspective of the study of imagery over time, in order to contextualise its current status in research.

2.2 A Brief Historical Perspective

Although it was Francis Galton who initiated empirical research with the first recorded study on mental imagery in 1897, imagery had been subject to discussion long before this. In 384 BC, Aristotle proffered that "the soul never thinks without a phantasma" (MacKisack *et al.*, 2016, p. 1), ('phantasma' being the Greek word for mental image), suggesting that mental content was impossible without images. Both classical and modern philosophers have debated the role of imagery in thought processing and knowledge acquisition. Since this time, our understanding of imagery as a form of internal representation and mediator of cognitive processing has advanced considerably; facilitated particularly by the development of a rich research base in cognitive psychology (e.g., Paivio, 1985, 1990), cognitive neuroscience (e.g., Kosslyn *et al.*, 2006), and more recently, in the study of motor cognition (e.g., Jeannerod, 1995, 2006).

It is notable, however, that there was a period of time when research into mental imagery was sparse and the cognitive function of imagery was cast in controversy. This period was initiated by the Behaviourist movement in the early 20th century. Given that there was no way to 'observe' mental imagery, and introspection was not considered to be a valid research method, imagery became subject to scepticism; relegated to the unscientific category. This led to a general sense of dubiousness about the role of imagery in cognition, or 'iconophobia' (Antoinetti & Colombo, 2011), which prevailed until the 1960s, when, upon the advent of cognitive psychology, research on imagery began to revive and grow again

(Zeman *et al.*, 2015). The role of mental imagery once again became a topic of discussion, generating a lively debate: a debate that would be critical in furthering our understanding of mental imagery.

The underlying foundation of this debate was mental content and its format in representational terms. With the emergence of artificial intelligence, as scientists attempted to construct computers to mimic the human mind and its mental functions, it had become particularly pertinent to understand the code, i.e. the way that information was represented in the brain. Thus, the practical question driving the discussion was: "if one were building a mind, how would one represent information in it?" (Pearson & Kosslyn, 2015, p. 10089). As Holmes *et al*., (2016, p. 6) explain, "the content of a thought is what information it conveys, whereas the format is the *nature of the code* used to represent this information." Two key viewpoints emerged in this debate, namely the propositional and the depictive. The propositional theory (led by Pyshlyn, 1984) contended that it was language that was the vehicle of thought, and that there was nothing 'picture-like' in the underlying format of internal representations. Mental information was represented semantically and any imagery that occurred was incidental and symbolic; an epiphenomenon, serving no cognitive purpose in itself: rather like "the heat thrown off by a light bulb when one is reading; the heat plays no functional role in the reading process" (Pearson & Kosslyn, 2015, p. 10090).

Depictive theorists on the other hand argued that mental representation and cognition could take place in an exclusively depictive and pictorial format. To support this hypothesis, a series of experiments were conducted, in which participants were required to scan (Kosslyn *et al*., 1978), fold (Shepard & Feng, 1972), rotate (Shepard & Metzler, 1971), enlarge (Kosslyn, 1975), or inspect (Finke, Pinker & Farah, 1989) mental images in their mind. The findings, which showed that people could transform and manipulate the images as required, were taken to indicate that thinking could occur pictorially. Of significance also was that the time taken to perform the mental operation corresponded with the time taken to perform the task in real time, showing that the mental process occurs in a way that is parallel to perception.

The depictive vs propositional debate dominated the 1970s and 80s, and in 1971, Canadian psychologist Alain Paivio proposed the Dual Coding theory, further informing this debate. The mnemonic effects of imagery were what had first inspired Paivio when he was introduced to imagery as a mnemonic tool whilst attending a public speaking course (Marks,

1999), and after a considerable amount of experimental research, Paivio became convinced that imagery played a key role in memory. His Dual Coding (imagery code and verbal code) theory of mental representation stated that the human memory stores information in two separate systems: verbal memory and image memory. Although both types of information are processed differently through distinct channels, these two stores can interact with each other, and a memory can be stored using both codes. Paivio's theory became widely influential and informed the imagery debate at the time by "challenging the compartmentalized, either/or semantic vs. imagery view of cognition and instead advocated a proposition that the secret lies in the unification of the two great coding systems for efficacious memory and higher order levels of cognition" (Watkins, 2017, p. 43). Recently Pearson and Kosslyn (2015) declared the depictive-propositional debate to be over, with the recognition of the now more accepted view that mental representation can be 'quasi-pictorial' (Kosslyn, 1980).

By offering a framework to understand the nature and role of mental representations in cognition, these theories surrounding mental imagery have shaped the methodology of my research. The view that will inform the design of the studies in this thesis is grounded in the integration of both verbal and imagery codes in the process of generating ideal selves. Participants will be encouraged to use techniques that activate these dual cognitive systems, drawing on the interaction between verbal and imagery codes (see Methodology 6.2.1).

2.3 Features of Mental Imagery

Presently, research into mental imagery continues to flourish, and this section will present some of the insights from this research and what we now know about the features of mental imagery.

2.3.1 Mental Imagery is Multisensory

Mental imagery is sometimes referred to more colloquially as visualising or 'seeing with the mind's eye'. However, these terms, and indeed the word 'imagery' itself, could be misleading, by implying the creation of picture-like images in the mind. Given that mental imagery refers to "any experience that mimics sensory and perceptual experiences" (Gregg & Clark, 2007, p. 1), it is not limited to the visual, but can be experienced in any sense of perception (i.e. vision, audition, olfaction, gustation, and kinesthetic; Vines 1988). As Kosslyn *et al.* (1995, p. 1335) explain, "visual mental imagery is 'seeing' in the absence of

the appropriate immediate sensory input, auditory mental imagery is 'hearing' in the absence of the immediate sensory input, and so on." A person may therefore imagine the smell of a rose and experience olfactory imagery, or imagine the physical sensation of running, during kinaesthetic imagery. Therefore, it is important to clarify that mental imagery is not exclusively picture-like and in fact refers to "a quasi-perceptual experience in any sense mode (or any combination of sense modes)" (Kosslyn *et al.*, 2006, p. 28).

It does appear however that in terms of empirical evidence, it is the visual format that has been studied most extensively. Pearson (2019) explains that this has been due to the tractability of operationalising research in one sensory field, and also because the visual sense is most dominant in humans, as is attested by the fact that more cortical tissue is used for visual perception than for any other sense. As Marks (2019, p. 3) points out, "The essentially visual nature of thinking is "reflected" in the words used in conversation about "seeing", "views", "standpoints", "outlooks", "perspectives", "prospects", "angles", and "horizons", to mention only a small sample." Furthermore, as visual imagery is depictive, this format can also be a useful aid for memory. It is easier to remember some information in pictorial form; for example, if we imagine a dog's ears or a sunset, we usually picture these visually. The visual sense is also useful for mental tasks that require spatial simulation, for example, working out how much luggage can be stored in a car boot.

Visual mental imagery has been divided into two categories: object and spatial; and this distinction has led to the measurement of visual imagery ability through two separate and independent constructs. Object visualisation concerns the colour, shape, and texture of the mental image whilst spatial visualisation refers to the mental picturing of an object in motion or in 3D, as well as to its manipulation (Blazhenkova, 2016). Interestingly, those with higher spatial ability have been linked to higher mathematics achievement and mathematics self-efficacy, whilst object visualisation ability has correlated with achievement and self-efficacy in the arts (Blazhenkova & Kozhevnikov, 2016). Whether these types of imagery are separate entities relying on two separate "visual systems" has been considered, with studies showing that the congenitally blind can create spatial imagery but not visual mental imagery, suggesting that spatial imagery may be performed without visual representations (Hussey *et al*., 2012).

It is a positive development that a substantial evidence base on visual imagery is emerging. However, it is too often assumed that findings from visual imagery will naturally

generalise to the other senses. Pearson hereby provides a word of caution, highlighting that "evidence from other modalities is necessary to infer generalized principles" (2019, p. 264), as well as the need for "characterizing all of the different possible formats of mental representation, as well as discovering when and how they are used during cognition" (Pearson & Kosslyn, 2015, p. 10089).

2.3.2 Imagery is a Weak version of Perception

As Kosslyn, Thompson and Ganis (2006, p. 4) explain, "a mental image occurs when a representation of the kind created in the initial stages of perception is present, but the stimulus is not actually being perceived". In other words, an "experience of perception in the absence of the appropriate sensory input" (Wraga & Kosslyn, 2002, p. 466). Based on these definitions, it is evident that imagery creates, in a sense, perception in the absence of actual perception. This paradox is fundamental to the neurophysiological foundation of mental imagery and in fact imagery is now believed to "function much like a weak version of afferent perception" (Pearson, 2019, p. 624). Seeing an apple and imagining an apple induces a similar experience (see Figure 1), although the mental image may be not as rich and intense or as vivid as perception. This similarity had been hypothesised for a long time, most notably by Hume (2000, pp. 1-2) who proposed that imagery and perception bore great similarity in their phenomenology "in every other particular, except their degree of force and vivacity".

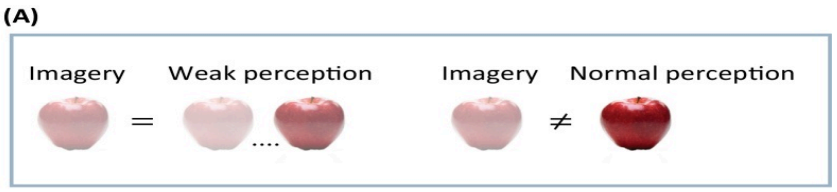


Figure 1 *Imagery Resembles a Weak Version of Perception. (A) A useful way to conceptualize mental imagery as a weak form of sensory perception (Pearson et al., 2015).*

As Marks (2019, p. 5) summarises, the current position is that "a large body of psychological and neuroscientific research is consistent with the tenet that imagery is functionally equivalent to, but not identical to, perception." How is this possible? If we consider imagery as "an experience that mimics real experience, in the absence of actual perception" (Cumming & Ramsey, 2008, p. 5), the neural activity that takes place during the mimicry is remarkably similar to the activity that occurs during actual perception. In other

words, there is a significant amount of neural overlap between actual perception and imagined perception. In 1930, Jacobson had proposed the psychoneuromuscular theory outlining neural overlap, and this was confirmed many years later via neuroimaging, which illustrated the overlap in neural activity during sensory perception and imagery-induced activity (Kosslyn & Pearson, 2015). Moreover, this overlap is not limited to visual imagery alone (although this has been subject to more study) and occurs in imagery involving other sensory modes (see Section 2.4 for full discussion on neural mechanisms). It is worth noting that the fact that imagery and perception are not identical can be seen as a blessing, as it is this that prevents us from confusing our mental images with external reality!

2.3.3 Imagery is a function of memory

Through mental imagery we are able to construct images that "give rise to the experience of perception in the absence of the appropriate sensory input" (Wraga & Kosslyn, 2002, p. 466). As images are created without any input from external stimuli, a question arises concerning the source of these mental representations: during an entirely internally generated experience, where do they come from? From a cognitive neuroscientific perspective, mental imagery is conceptualised as a 'top-down' process originating from memory, comprising information and content that our senses have previously been exposed to.

It may be helpful to first consider the imagery process as a whole before addressing the role of memory. The computational theory (Kosslyn, 1980; Kosslyn, 1996) divides the process of mental imagery into four cognitive functions: image generation; image maintenance; image inspection; and image transformation. The image is first generated internally using memory. It must then be maintained, which requires activation of the attentional function of the central executive component of the working memory system (Pearson *et al*., 1996). Once it has been maintained, it may then be subject to closer inspection whereby a particular aspect is focused on more closely, and also to transformation, in which the image initially generated may be adapted in some way.

When the image is initially generated, content can be sourced from long term (LTM) or short term (STM) memory. Mental images generated from LTM arise from 'deep representations,' or 'structural descriptions' that may not directly be in our awareness (Kosslyn, 1996; Kosslyn *et al.*, 2006), whilst images from STM are derived from more recent

and conscious memories. LTM can be formed of either episodic or semantic memory, with the former involving recall of past events and the latter relating to recall of facts. Kosslyn (ibid) refers to mental images from LTM as 'degraded' images and hypothesises a negative impact on the vividness and level of detail of the image, with the LTM image more likely to contain missing elements (Borst & Kosslyn, 2008). This bears implications for the generation of images in deliberate training programmes; vividness and accessibility may perhaps be enhanced by using images sourced from STM, instigated by observation of photos or video material.

Perhaps more pertinent than the source of content is the role of the working memory (WM) (Baddeley, 2003) in processing the content during the stages of image maintenance, transformation and inspection. As Baddeley outlines, "working memory…..temporarily maintains and stores information, supports human thought processes by providing an interface between perception, long-term memory and action" (2003, p. 829). This interface, which has been referred to as the 'visuospatial sketchpad' (ibid), enables the brain to temporarily retain and manipulate memory-induced perceptual features in order to generate mental images. Therefore, it is the WM that enables the combination of multiple memory-based representations through a central executive system. This understanding of working memory in imagery is consistent with its neural basis which involves interactions between prefrontal and posterior regions, implicating the sharing of information (Skottnik & Linden *et al.,* 2019).

Memory and imagery are thus intertwined, and as Ganis explains (2013, p. 10), "reactivating and inspecting internal representations in the absence of a corresponding external stimulus is one of the core aspects of mental imagery". The relation between imagery and memory is so strong that even false memories can be created through guided imagery of events that did not occur (Loftus & Pickrell, 1995). This leads to a question regarding the ability to create mental images: if imagery is reliant on memory, then do individuals with weaker memories have weaker imagery skills? If people cannot remember, then they have less input for imagery and are thus more limited in their capacity to create content. One study on patients with Alzheimer's disease (AD) (Hussey *et al.*, 2012, p. 124) suggested that memory loss does impact imagery: "Given that patients with AD can perform basic mental imagery, our results suggest that episodic memory deficits likely prevent AD

patients from storing or retrieving general mental images generated during encoding". This interesting question of mental imagery and ability is returned to in Chapter 4.

2.3.4 Imagery is a creative phenomenon

As we have seen, imagery is sourced and processed using memory. However, it would not be apt to present the conceptualisation of mental imagery purely as retrieval of memory, since by its nature it is an imaginative phenomenon. Deriving from the Latin word 'imaginare', which means "to form an image or to represent", imagination refers to "the faculty or action of forming new ideas or images or concepts of external objects not present to the senses" (Oxford Dictionary). The development of new ideas through the reconstruction of mental images *in a novel way* is therefore an essential aspect of imagination (Kosslyn *et al.,* 2001; Chavez, 2016). According to Arp (2005), an evolutionary psychologist, it is this 'imagistic thinking' - the ability to create and manipulate imagery in order to innovate and solve problems - that distinguishes humankind from other species. This faculty enables us to envisage alternative future scenarios creatively in a way that may not be possible in reality, and Arp attributes mental imagery as the key factor in enabling the development of complex cultures and technology.

Vivid imaginations and higher imaging abilities (Guillot & Collet, 2010) are generally associated with highly creative individuals, and as LeBoutillier & Marks (2003, p. 32) observe, "the use of mental imagery has been linked to the genesis of creative ideas and products across a range of disciplines". An oft-related example is Albert Einstein, as a 16-year-old, running after an imaginary light beam; a fanciful mental image that became the foundation of the special theory of relativity many years later. In a letter to Jacques Hadamard (Hadamard, 1945, p. 142), Einstein attempted to explain the role of images in his creative process:

> The words or the language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The psychical entities which seem to serve as elements in thought are certain signs and more or less clear images which can be voluntarily reproduced and combined …

Another key discovery through mental imagery was the discovery of the benzene structure, considered to be the basis of chemistry, imagined by Kekulé as he sat by the fire, and described as a series of snake-like molecules in motion:

> I turned the chair to face the fireplace and slipped into a languorous state. Again atoms fluttered before my eyes. Smaller groups stayed mostly in the background this time. My mind's eye, sharpened by repeated visions of this sort, now distinguished larger figures in manifold shapes. Long rows, frequently linked more densely; everything in motion, winding and turning like snakes. And lo, what was that? One of the snakes grabbed its own tail and the image whirled mockingly before my eyes. I came to my senses as though struck by lightning.
>
> (Rothenberg, 1995, p. 424)

It seems therefore that a combination of reconstructed memories enable the imagination to connect past observations and present observations in order to identify new phenomena. Stephen Hawking, Dimitri Mendeleev, Isaac Newton and Micahel Faraday are other notable scientists who credit their creativity to imagistic thinking (Polland, 1996), and indeed, Isenman goes so far as to say that "the collective scientific endeavor can be seen as an extension of the basic human mental activity of *image-ing* or *imagining* the world" (2019, p. 25). Of course, not all creative geniuses are in the scientific field, and the composers Mozart and Wagner, the artist Leonardo da Vinci, and the well-known poet Samuel Coleridge are also renowned for their use of mental imagery (Polland, 1996).

One common feature of creativity is that the realisations occur in an unexpected manner, arising from sudden insights and illuminations; or a type of 'aha! experience' (Gick and Lockhart, 1995). Chavez characterises this type of creativity as "*primordial imagery*: a sudden, multimodal, multiintegrative, highly condensed representation that is germinative, unleashing insight and multiple associations and possibilities for meaning" (2016, p. 5). A review of 44 true accounts from renowned scientists, musicians and writers who experienced creative imagery, corroborates the spontaneous and illuminatory nature of imagery by concluding that: "Results of this study indicate that mental images occurred more often in a spontaneous, unexpected way while the subjects were relaxing or otherwise preoccupied with routine behaviors" (Polland, 1996, p. 12). Thus, we may concur with Richardson (1994), who argues that creative imagery is an 'involuntary phenomenon', not entirely in control of the individual.

Accompanying, or rather underlying, these unexpected illuminations are profound insights. Insight is ubiquitous to imagery; imagery being "a process through which we perceive our own minds, allowing us further symbolization and access to our thoughts...." (Chavez, 2016, p. 1). When people are engaged in creative thought, their gaze shifts towards an empty space or blank wall (Salvi and Bowden, 2016), reflecting a shift from external to internal stimuli, and from outside perception to inner. It is likely that the introspective nature of mental imagery is able to unlock the door to *unconscious* insights and knowledge leading to their incorporation in creative simulations. As Richardson (2020) tells us, the new ideas that emerge during the incubation stage can become accessible during the illumination stage. It may in fact be said that this shift represents an altered state of consciousness (Richardson, 2020), or at least an altered state of awareness; whether that state is a hallucinogenic one, as in the case of Kekule, or simply one of being more mindful and self-aware, or what Chavez (2016, p. 73) calls a 'state of free-floating attention'. During imagery, self-consciousness is pronounced, with no distractions from external foci and thus imagery can cause state fluctuations with regard to the degree of being aware of oneself and the environment (Wittman *et al.*, 2019).

Isenman (2016) also highlights the importance of the unconscious in creative imagery, specifically highlighting intuition; the cognition that functions without the use of conscious and rational processes, also referred to as our 'sixth sense'. She posits that imagery provides a bridge between "two separate yet richly interconnected pathways to scientific inquiry, the empirical and the intuitive" (Isenman, 2016, p. 2). The links between consciousness, intuition and imagery have thus far been neglected in research (Haustein *et al.*, 2020), perhaps due to their subjective nature, and so it is not possible to comment further on the relation between unconscious cognition and imagery. To conclude however, it is reasonable to say that we may conceptualise mental imagery as "a representational medium", without knowing the exact mechanisms of that medium, but nevertheless a medium that enables "access to thoughts, symbolization, and combination of elements, possibly facilitating the emergence of new ideas and creativity" (Palmiero *et al.,* 2016, p. 1).

2.3.5 Imagery is an Emotional Amplifier

Peter Lang was one of the first scientists to theorise about the emotion-inducing effects of internally generated representations; his bioinformational theory (1979) highlighted the fact that an imagined stimulus triggers the same emotional response systems as the real stimuli.

Using the example of a spider, Lang was able to show that the mental image activated the same networks of information as actual perception. These networks included perceptual information about the stimulus, in this case the shape, size and colour of the spider; information relating to meaning arising from the situation, such as danger; physical information such as fear and racing heart, as well as preparatory motor responses (e.g., muscles tensing to flee from the spider). Thus mental imagery based representations engage similar cognitive and neural networks (Kosslyn & Thompson, 2003) and elicit emotional responses in the same way that life experiences do (Holmes & Matthews, 2010; Blackwell *et al.,* 2013). That mental imagery is able to trigger components of the affective system is evidenced also by the fact that people with higher imagery ability display a greater emotional response than people with poor imagery ability (Miller *et al*. 1987).

A recent study by Wicken *et al.* (2019) also examined the link between imagery ability and emotion but took a different methodological approach by working with a population that has no visual imagery, i.e. is aphantasic. Two groups (one aphantasic and the other with non-impaired imagery) were required to read a set of fictitious fearful scenarios on a screen in a dark room. It appears that the aphantasic group did not feel afraid during the reading experience, as their level of fear, assessed through skin conductance, was significantly lower than that of the normal imagery group. Importantly, this could not be attributed to lower fear levels in general, given that when watching frightening stimuli on a screen, the aphantasics were just as frightened. The implication is that mental imagery mediated fear, and without any mental simulations, aphantasics were not able to experience an emotional response whilst reading. As the authors (ibid) summarise, "These data suggest that imagery connects thoughts to emotions, via sensory simulation. This is, to the best of our knowledge, the strongest evidence to date supporting imagery's theoretical role as an 'emotional amplifier'" (p. 25).

As seen above, it has been suggested that imagery is not only a mediator, but an amplifier of emotion, whereby it is able to exert a greater influence on affective states (whether positive or negative) than semantic processing. Previous studies have confirmed this (e.g. Holmes & Mathews, 2005; Holmes *et al*. 2006, 2008), and it is generally accepted "that image-based cognition is more emotionally consequential than its propositional (e.g. verbal) counterparts" (Wicken *et al*, 2019, p. 25). One such line of studies has focused on the mood improving impact of imagery, finding that changes in mood are greater when events are

processed via mental imagery as compared to verbal processing (e.g. Holmes *et al.,* 2008, 2016). It seems that imagery is able to enhance and amplify the emotional factor in thought, and this appears a reasonable deduction, when we consider how intertwined emotions and senses are. Our experiences come with corresponding feelings, and mental images, due to their multisensory nature, "come laden with associations in the form of feelings, e.g., attraction, calm, tranquility, fear, anger, or anticipation……." (Marks, 2019, p. 12). Imagery is therefore able to facilitate more direct contact with emotional systems (Holmes *et al*., 2016).

So why is this emotional function of mental imagery significant? Because emotions play an important role in our overall mental functioning, impacting a range of cognitive processes, from attention, memory and learning to problem solving and decision making (Tyng *et al.,* 2017). Emotions regulate our perception of the world and create representations that are more meaningful and powerful. For example, we usually find it easier to remember the details of emotionally significant events (ibid), such as the birth of a baby or our first day at school, with emotional stimuli leading to emotional enhancement of memory (EEM) (Todd *et al,* 2020). This seems logical when we consider how embedded the affective system is into our neural networks, with emotional experiences arising from "distributed neural representations that include affective, cognitive as well as sensory components" (Skottnik & Linden, 2019, p. 4). In fact, as Todd *et al.* (2020, p. 25) point out, the "emerging view in cognitive neuroscience is that, rather than constituting a distinct and opposing system, emotion is a fundamental, inseparable component of cognition and its neural underpinnings."

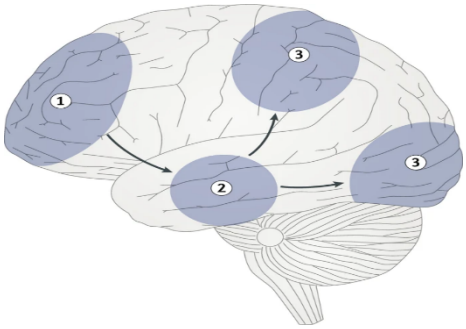
2.4 The Neural Mechanisms of Mental Imagery

It was really with the advent of neuroimaging that the scientific status of mental imagery began to increase. Once neuroimaging technology became available in the 1990s, imagery was no longer dependent on introspective and subjective and 'non-scientific' evidence. Insight into mental processing became possible, and the workings of the brain during imagery could now be observed, to a degree. Brain imaging research began with the development of Positron Emission Tomography (PET), a technique in which the subject was injected with a radioactive tracer into the bloodstream to illuminate blood flow to the brain, thus highlighting the regions active during imagery. The utilisation of PET for functional brain imaging "set

the stage for the explosion of research in cognitive neuroscience" (Boone & Piccinini, 2015, p. 22), and led to the development of more sophisticated and non-invasive technology such as functional Magnetic Resonance Imaging (fMRI). Now, studies began to focus on physiological responses to imagery by using blood flow in different parts of the brain as a measure, and soon the cortical circuits that were responsible for imagery processes began to emerge. Thus neuroscience was able to inform methodological approaches, leading to rapid advances in our understanding of imagery.

By comparing subjects with brain damage or impairment with those with normal functioning, it has been possible to ascertain which parts of the brain circuitry are responsible for imagery. The common measure used is the blood-oxygen-level-dependent (BOLD) response, measured in voxels, which measures the change in ratio of oxygenated to deoxygenated blood, indicating the level of response to a stimulus or a cognitive event. Thus, neuroimaging technology has been able to shed light on how imagery processing occurs in terms of brain activity, and presently, research continues to investigate the nature and extent of the neural overlap between imagery and perception. A recent review of neuroimaging studies confirmed that "there is convincing evidence that perception and imagery share a variety of neural mechanisms" (Djikstra *et al.,* 2019, p. 8). Although a discussion on the neural mechanisms of imagery would be highly technical, it is helpful to have a basic understanding of some of the processes at work. This section will begin with research relating to visual mental imagery, which has been more widely investigated, before proceeding to other sensory modalities.

As Pearson *et al.* state (2015, p. 590), "much of the work on imagery and perception in the 1990s and 2000s revealed that imagery shares processing mechanisms with like-modality perception". The basic premise regarding the neural overlap between visual perception and visual mental imagery is that both function through a 'single visual buffer', flowing through the same visual pathways (Kosslyn *et al.*, 2001) in a bi-directional flow, with perception employing a 'bottom–up' generation process and imagery a 'top–down' one. Bottom-up connectivity begins with external stimulus to the retina, which is processed in the visual cortex, leading to memory activation and recognition of the object. In the case of mental imagery however, the source of mental representation is internal; as we saw earlier, "information in memory underlies the internal events that produce the experience" (Kosslyn, 2004, p. 333). Thus, mental imagery follows a 'reverse hierarchy' (Pearson, 2019), activated through 'top-down' projections based on sensory-memory recall from fronto-parietal areas to visual areas at the back of the brain (see Figure 2).



The initial mental action to create a mental image 'begins' high in the cortical processing hierarchy, in the frontal cortex (step 1). This triggers a cascade of neural events, running 'backwards', that next retrieves stored information or memories from more posterior regions such as medial temporal areas (step 2), and sensory and spatial representations of the imagery content are then formed (steps 3). If the 'requested' representation involves movement and spatial locations, then other areas like the middle temporal area and parietal lobes would also be involved.

Figure 2 *A top-down general model of voluntary mental imagery: a reverse hierarchy. (Pearson, 2019)*

Although the precise mechanisms are subject to debate, the main cortical areas displaying an overlap during processing of visual perception and visual imagery have been identified as the visual, parietal, and frontal cortex (Djikstra *et al.*, 2019; Winlove *et al.,* 2018), and it is believed that in these areas "there is a large overlap in neural processing during perception and imagery" (Djikstra *et al.*, 2019, p. 1). This is illustrated in Figure 3, where the frontal area relates to task, the parietal area encodes the saliency of the content and the visual cortex encodes visual features. Figure 4 displays the connectivity process between these three areas, with the width of the arrows reflecting the relative importance and influence of each connection.

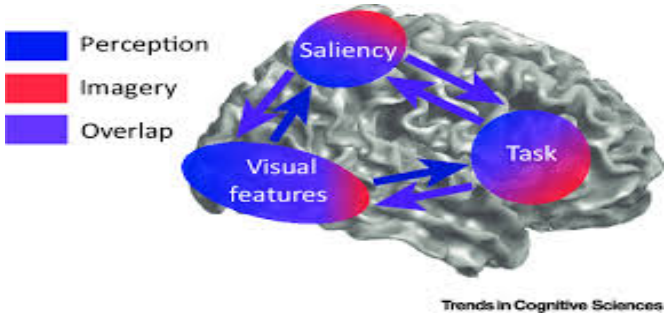


Figure 3 *Shared Neural Mechanisms of Visual Perception and Imagery (Djikstra et al., 2019, p. 4)*

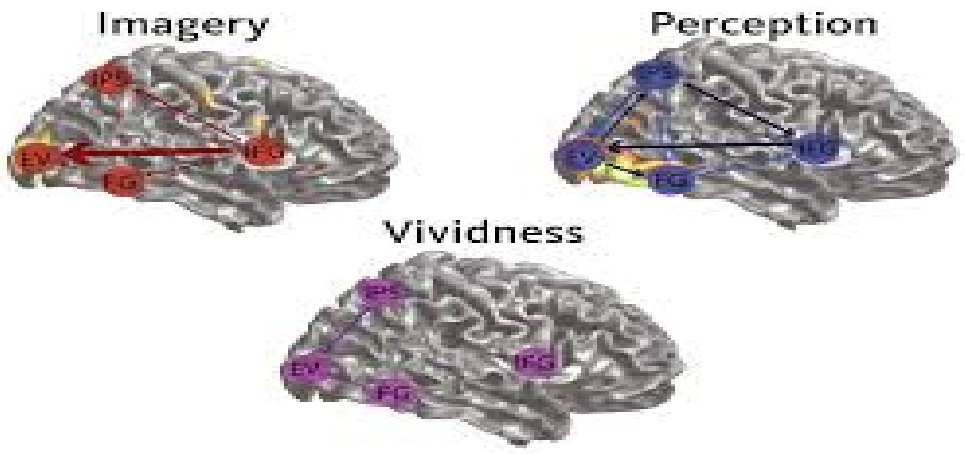


Figure 4 *Effective Connectivity During Perception and Imagery (Djikstra et al., 2019, p.9)*

During mental imagery the connection from the frontal to early visual cortex is most significant, while for vividness, the link from the parietal to the visual cortex is most relevant, and if we consider the function of each of these cortical areas we can see why. The prefrontal cortex effectively functions as the task control centre, playing an executive and organisational role, by channelling and retrieving memories and information from medial temporal areas. FMRI scans have confirmed that greater activity in the prefrontal cortex is linked to stronger visualisation ability (Keogh *et al.*, 2020).

Also involved in top down control of visual imagery is the parietal cortex, towards the centre of the brain. A meta-analysis of 40 visual neuroimaging studies, spanning from 1993 to 2015, showed that this area was consistently activated in all studies during imagery (Winlove *et al.*, 2018). Given that this area is responsible for integrating sensory information and is linked to higher order functions such as attention and working memory (Caspers *et al.*, 2012), its importance in the imagery process is paramount. If we return to the concept of the 'visuospatial sketchpad' in the working memory model (Baddeley, 2003) mentioned earlier, it is the working memory (WM) that enables the combination of multiple memory-based representations. Imagery vividness has correlated positively with WM performance (Keough & Pearson, 2011; Baddeley & Andrade, 2000), and in fact, such is the role of WM in mental imagery that it has been suggested that they may be 'one and the same' (Tong, 2013). This has been questioned however, as Jacobs *et al.*, (2017) found that an individual with no visual imagery was still able to conduct some tasks using working memory, indicating that WM has

functions other than imagery. The exact overlap between WM and imagery is therefore ambiguous.

What is clear however, is that the cortical area playing the largest part in both imagery and perception is the visual cortex (VI). Located in the most posterior region of the brain, this is the area that first receives visual signals from the eyes during visual perception and is "a gatekeeper of retinal information into the cortex" (Pearson *et al.*, 2015). Because perceptual processing occurs largely in the V1 (see Figure 3), this area is most significant for enabling similarity between visual imagery and perception (Djikstra *et al.*, 2019). The level of neural activity in the VI has often been linked with individual differences in imagery ability and imagery vividness (see Cui *et al*., 2007), correlating positively with both (Dijkstra *et al.*, 2017). FMRI studies have also confirmed that VI is active during mental imagery, even with eyes closed (e.g. Amedi *et al*., 2005, D'Esposito & Postle, 2015), and studies using transcranial mental stimulation studies (TMS) found that magnetic pulses to the V1 impaired visual mental imagery as well as visual perception, again indicating its central role. It is believed that during imagery, V1 functions as a 'cognitive blackboard', with other areas of the brain providing it with the required information, and particularly the parietal cortex (Figure 4), enabling it to represent the imagined stimulus as vividly as possible (Roelfsema & De Lange, 2016).

Interestingly, a further link has been identified between VI size and imagery, with a smaller visual cortex leading to clearer and more vivid imagery (Bergmann *et al*., 2015); potentially due to a smaller V1 receiving less 'noise' and thus better signals from the frontal cortex. This is consistent with Keough *et al*. (2020) who found that stimulation to the V1 resulted in weaker imagery by creating higher excitability and excessive 'noise', thereby limiting the region's ability to receive top down signals.

It is important to note however that neuroimaging is a new phenomenon and evidence is not conclusive. Indeed, some studies have found that despite damage to the V1, mental imagery can still be created (Bridge *et al*,, 2012), and in the aforementioned review of 40 visual mental imagery studies (Winlove *et al.*, 2018) the V1 was not active during 6 of these. The difficulty in interpreting results from neuroimaging studies has also been highlighted, due to the inconsistent terminology used to address neuroanatomy, "with multiple distinct terms used to refer to the same anatomical or functional brain region, or the same term used to refer to different regions" (Winlove *et al*., 2018, p. 4). Furthermore, small sample sizes in

many of the studies, as well as the diversity of methodological and analytical techniques employed, are cited as issues which lead to non-comparability across studies. Another issue is that mental imagery encompasses a vast variety of tasks. It is thus difficult to generalise the cortical areas, as the exact brain areas involved will depend on the task. Visual imagery alone can be diverse, and is considered as two different constructs: object and spatial, with the former dealing with shape and colour and the latter with motion. The two involve different brain areas, and are not dependent on each other, as one can be lost without losing the other.

With regard to sensory modes other than visual, it is also believed that there is an overlap between brain activity during like-modality perception and mental imagery. In a meta-analysis of 65 neuroscientific studies that included auditory, tactile, motor, gustatory, olfactory as well as visual imagery, McNorgan (2012) found that all sensory formats of imagery share neural processes with their respective perceptual system, and "that modality-specific imagery generally recruits the corresponding primary perceptual areas". McNorgan (2012) identifies a 'General Imagery Network', based on areas active in all imagery studies, regardless of modality, consisting of the bilateral dorsal parietal, left inferior frontal and anterior insula regions, based primarily in the left hemisphere. However, McNorgan also points out that while there is generally an overlap, brain activity during mental imagery is not restricted exclusively to the areas activated during perception and other neural processes also facilitate the imagery. Nevertheless, he concludes that "imagery and perception are thus two sides of the same coin" (2012, p. 1).

Emotional stimuli also activate similar cortical structures during imagery and perception. Seuss and Rahman (2015) found that imagining a happy or angry face created similar cortical responses to the ones that occurred with direct confrontation of the happy or angry face. The authors concluded that the brain areas involved in the perception of facial expressions are also active during imagery, with the amygdala playing a central role. Kim *et al.* (2007) also observed activation of the amygdala when people imagined aversive faces. Although the amygdala is regularly cited, brain activation during emotional imagery is not limited to a particular area, and is associated with activation of the prefrontal areas, the medial lobes and also the visual cortex.

2.5 Summary

Beyond this introduction to some broad characteristics of mental imagery, it is not possible to provide definitive clarification of its actual experience and content. Although the mental apparatus can now be viewed, the imagery experience itself is an inherently personal and private one, taking place inside the mind, behind closed doors. Each person's experience will vary, due to differences in imagery ability, use of varying sensory modalities, and also because imagery will evoke different meanings and emotions. As Suess and Rahman point out (2015, p. 1), imagery is "associated with the subjective experience of perceiving or acting within one's mental world". However, Isenman (2016, p. 137) contends that an element of mental homogeneity is also at play, as "*within broad limits*, all humans tend toward similar mental models of the sensory world", given that we "interact with an external world that is similar in its broad outlines."

Chapter 3 Mental Imagery in Practice

3.1 Introduction

Given that mental images are essentially non-verbal thoughts with sensory features (Holmes *et al.,* 2016,), they play a fundamental role in our cognitive functioning and everyday mental processes. This can manifest in a variety of forms; "ranging from fleeting sensory impressions and static scenes (mental pictures) to detailed re-play or pre-play of events situated in a specific space, time, and context (mental movies)" (Ji *et al.*, 2019, p. 114). Whether we are fondly reminiscing about a past event, daydreaming about the future, reading a descriptive text, or relaxing in a yoga class, it is highly likely that imagery will play some part in our mental processing. In fact, Holmes *et al.* (2016, p. 252) posit that imagery is such an integral part of our lives that "almost any behavior that might gain from sensory simulation may use mental images, from avoiding threats (e.g., failures) or seeking rewards (e.g., future successes) to solving problems and completing tasks (e.g., everyday activities)." Kosslyn *et al.*'s study (1990) identifies some of the ways in which their subjects made use of imagery in their everyday lives:

1. Solving problems (e.g., deciding what to eat)
2. Rehearsing future encounters (e.g., asking their boss for a salary raise)
3. Jogging of memory (e.g., imagining a face to remember a forgotten name)
4. Producing descriptions (e.g., giving directions to a place)
5. Understanding descriptions (e.g., picturing a character in a book)
6. Regulating emotions or motivating (e.g., imaging a calm lake to relax).

Mental imagery is used in different ways and for different purposes, and its multisensory nature adds to its ability to cater for a range of functions. By enabling us to imagine situations, events and outcomes "involving quasi-sensorial, quasi-perceptual, and quasi-affective characteristics " (Morris, Spittle & Watt, 2005, p. 19), imagery really can be considered as an immersive, multi-sensory simulator. So how has the power of mental imagery been exploited? This chapter will consider how mental imagery has been applied in practice in the fields of sport, psychology, public health and education.

3.2 Sport

It is well-known that many successful athletes have practised visualisation, a few prominent names being Muhammad Ali, Michael Jordan, Carl Lewis and Andre Agassi (Darling, 2008). Muhammad Ali, in the 1960s, credited imagery with enabling him to create 'future history'; by rehearsing his fight repeatedly in his mind he would predict what would happen in the fight, e.g. 'Archie Moore, you're going in Round 4', and astonishingly, in 17 out of the 19 fights that he predicted, he did so correctly (McDermott, 2011: npg). Wayne Rooney, the England footballer, says he has used visualisation to prepare for matches since he was a child, and likens it to 'having a memory before a game' (Bailey, 2014: npg). Whist another proponent, Novak Djokovic, the seven times Wimbledon champion, credits imagery as a key tool for his success, revealing that he uses visualisation both before and during the match (ibid).

In fact, mental imagery has been used in sport with such great success that it is credited with being the "centre pillar of applied sport psychology" (Morris *et al.,* 2005, p. 344). There are few training programmes in sport nowadays that do not incorporate the use of controlled and systematic imagery training, and imagery now forms a part of most athletes' training plans to such an extent that "a whole industry of visualisation training has been developed...to help athletes to achieve and maintain peak performance" (Chan, 2014, p. 398).

The imagery training that athletes undertake is commonly known as mental practice or mental rehearsal, which refers to "the systematic use of mental imagery to rehearse an action in the mind's eye without engaging the actual physical movements involved" (Moran, 2002, p. 349); in other words, conscious repeated simulation of the same action. As its focus is on rehearsing an action and movement, the modality is motor imagery (MI), whereby kinaesthetic sensations are simulated, for example kicking a football or swinging a golf club. This type of imagery leads to motor learning, i.e. "a change in motor behavior resulting from practice" (DiRienzo *et al.*, 2016, p. 1), or in other words performance improvement. It was as early as 1894 that Carpenter outlined his psycho-neuromuscular theory (Feltz & Landers, 1983), postulating that when a movement is imagined vividly it activates the accompanying neural pathways, thus assisting future performance of the movement. The premise that imagining an action induces similar motor operations in the brain as performing the action has since been corroborated by neuroscience; as Jeannerod explains, "motor images are endowed with the same properties as those of the (corresponding) motor representations, and

therefore have the same functional relationship to the imagined or represented movement and the same causal role in the generation of this movement" (1995, p. 1).

Spurred by the interest from athletes and coaches, sport has been at the forefront of applied research and "imagery has emerged as a distinct research field within the domain of sport psychology" (Simonsmeier *et al*., 2020, p. 6). The performance enhancing effects of mental practice have been particularly investigated by sport psychologists and cognitive neuroscientists alike. Imagery research in sport commenced after the 1984 Olympics, when Russian researchers discovered that those Olympians utilising imagery techniques had witnessed positive results on their performance (ibid). Since then, numerous studies have corroborated the power of mental practice on actual performance across a whole spectrum of sports, including gymnastics, sprinting, golf, volleyball, football, horse riding, swimming (for reviews, see Cumming & Williams, 2013; Slimani *et al.*, 2016). A recent meta-analysis (Simonsmeier *et al*., 2020) which included 55 studies published between 1960 and 2018, confirmed the effectiveness of imagery on outcomes, particularly highlighting the increased effectiveness of imagery supplemented with physical practice.

In addition to skills enhancement, the effect of imagery on muscular strength has also been recognised. With regular simulation, cortical signals to muscles become stronger, facilitated by repeated activation of the neurons required for maximal muscle activation (Ranganathan *et al.,* 2004). One study of 29 inactive individuals (Newsom *et al*., 2003) found that those visualising themselves exercising lost less muscle strength than those who did not carry out mental practice. This suggests that neurological mechanisms play a part in muscle strength, and that regular activation of cortical regions is able to combat disuse related muscle weakness. Imagery is therefore also commonly used as a rehabilitation tool for injured athletes when they are unable to practise physically.

In sport then the use of mental imagery clearly impacts performance through the mental practice of motor skills, or kinaesthetic and spatial imagery, incorporating movement and touch. It could be construed therefore that imagery use in sport may not bear much relevance for imagery application in language learning as outcomes are related to strength and physical skills alone. The subject of most research has been skill practice (Morris *et al.,* 2005), and Simonsmeier *et al*. point out that " all previous meta-analyses provide evidence for the effectiveness of mental practice to enhance performance" (2020, p. 5), whilst neglecting the effect on psychological factors.

However, several individual studies have noted the positive impact of imagery on psychological skills such as motivation, self-efficacy, self-confidence, managing competitive anxiety and inducing flow states (see Slimani *et al.,* 2016). Slimani *et al*. (2016, p. 454) go as far as to say that "the effect of mental imagery on the individual's ability to enhance motivation and self-confidence to improve strength is greater than its effect on the technical key components of the movement per se", suggesting that it is the 'psyching-up' that underlies the physical improvement. This is evidenced by the frequent use of imagery by athletes for psychological functions, including before an event to reduce anxiety and increase confidence (Garza & Feltz, 1998); during an event to assist concentration (Post & Wrisberg, 2012), and post-event for reviewing performances and maintaining skills (Thelwell & Maynard, 2003).

The fact that imagery has two distinct functions was recognised by Paivio (1985), who categorised these functions as cognitive and motivational. These functions were later expanded on by Martin *et al*. (1999), with the cognitive functions broken down into Cognitive Specific and Cognitive General, with the former relating to development of *specific* sports skills and the latter to creating *overall* strategies and game plans. The motivational function was divided into three types: Motivational Specific, pertaining to *goals* and goal setting; Motivational General Arousal, relating to *emotions* such as relaxation, and Motivational General Mastery, for maintaining a *positive focus* in challenging situations. It is this model that is now commonly used for referring to imagery functions in sport, and Martin *et al.* (1999) maintain that imagery use will be most effective when the intended outcome is matched by the imagery function; for example if the athlete needs to release stress then the imagery type used should be Motivational General Arousal.

These categories have been very helpful in enabling trainers to use imagery more effectively, by matching imagery content to the intended outcome, and tailoring the intervention more closely to the athlete's particular needs and goals. It should be noted that the term 'motivation' in the context of this thesis and more generally in learning refers to the initiation, direction, intensity and persistence of behaviour (Brown, 2007), and therefore is most consistent with the Motivational Specific function. However, although language learning motivation relates heavily to affective factors, in terms of the specific skills one wishes to develop, and also in developing longer term plans, cognitive functions are also highly relevant, and in fact were used by Chan (2014) to classify the reasons for which language students employed imagery in their lives.

3.3 Psychology

Psychotherapy is a field that has been particularly ahead of the game in employing motivational imagery, having implemented imagery systematically since the 1960s (Pearson, 2019). Unlike sport, the focus has been on the affective and emotional benefits of imagery. Interventions are usually carried out in a clinical context through guided imagery where clients (or patients) are led to imagine particular situations thought to be of therapeutic value. Imagery is particularly popular in Cognitive Behavioural Therapy (CBT) through techniques such as imaginal exposure, systematic desensitisation and imagery rescripting which effectively change negative events into positive. Evidence has shown that "imagery-focused CBT, as reviewed in clinical guidelines, has the strongest documented impact on treating PTSD and social phobia, with some trials showing success rates of up to 75%" (Pearson, 2019, p. 594).

Complaints about stress and anxiety are prevalent nowadays, and imagery interventions have been employed to address work-related stress stemming from occupational challenges. One such example is an imagery programme conducted with police officers (Arnetz *et al,* 2013). Conducted over 10 weeks, the training included weekly sessions in a 90 minute classroom format, which consisted of first visualising potentially stressful scenarios on the job, followed by mental practice of possible tactical responses in response to these scenarios, as well as relaxation techniques. Scenarios were chosen after interviewing experienced police officers about common stressful situations, and included high speed car chases, dealing with domestic abuse cases as well as potential assault and life-threatening situations. The officers also practised the imagery at home four times a week using a recorded audio script. Detail and vividness of the scenarios were emphasised, whereby "each scenario was described in great detail with vivid imagery to ensure that participants developed vivid, life-like mental images during the scenario, were emotionally engaged and physiologically aroused" (ibid, p. 80).

As might be expected, those participating in the training reported a significant reduction in anxiety. The researchers attributed this to a greater application of coping strategies in their work, meaning that they identified specific issues, set appropriate goals and enacted plans to achieve them. This in turn equipped the officers with a sense of control when faced with the stress-provoking situations "by rendering the incidents more predictable and

by providing a psychological/tactical repertoire for the officers to utilize" (ibid, p. 79). Perhaps more surprisingly, whilst the imagery led to beneficial effects on coping skills, it also led to an improvement in biological markers such as better sleep, lower tiredness levels and fewer stomach problems. Benefits were seen to continue for two years after the training and the researchers concluded that "police officers in the intervention group are likely bolstering their physical and psychological resiliency" (ibid, p. 81).

This bodes positively for L2 learning, as mental rehearsal of potentially difficult and anxiety provoking situations, such as speaking in front of others, or writing an essay in a second language could act as preventative training by equipping learners with coping skills, and generally promoting a sense of well-being and resilience. Simsek and Dörnyei's (2018) study with language learners confirmed these benefits, showing that visualisation training enhanced their self-images, boosting self-confidence and reducing both mental and physical anxiety.

3.4 Memory

The application of imagery techniques for memory enhancement have been in use for many centuries. One such tool is the 'method of loci', which involves visualising a physical space and then placing the things that one wants to remember along a specific route in that space. In fact, the origin of the phrases 'in the first place' and 'in the second place' is attributed to this technique, which was used to remember passages of speech in the correct order (Marks, 1999). The method of loci is still employed by memory athletes and has also been shown to improve memory in normal people. It is notable that it was the mnemonic effect of imagery that first interested Allan Paivio, when he was introduced to imagery as a mnemonic tool whilst attending a public speaking course (ibid), and later inspired him to propose the Dual Coding (imagery code and verbal code) theory of mental representation. Imagery is now regularly used as a rehabilitation tool to improve memory and many studies have found that mental imagery leads to memory improvement in adults (see Marre *et al.*, 2021).

3.5 Public Health and Medicine

The recognition that imagery is able to evoke stronger emotional responses than verbal-linguistic representation has been recognised, and incorporated into many public health interventions; particularly to promote healthy eating by curbing appetite and cravings

for food (Knäuper *et al.,* 2011), and other addictive substances, such as alcohol and cigarettes (Wynd, 2005). As Ji *et al.* (2019, p. 6) explain, "the moment-to-moment experience of being motivated to approach or avoid such stimuli involves emotionally charged cognition" and the more vivid the imagery the stronger and more emotionally charged the desire; perhaps this is why we sometimes refer to our overeating as 'emotional eating'! Further, due to its shared neural mechanisms with perception, food imagery can feel very realistic by triggering our gustatory salivary reflex, causing us to salivate, so that we can almost 'taste' the food. Interestingly, research has shown that creating vivid imagery of eating chocolate cake can actually be used to increase avoidance and reduce cravings by producing a feeling of satiation (Cornil & Chandon, 2016)! If we vividly imagine eating a lot of chocolate cake, we no longer feel like eating as much of the real thing. As Ji *et al.* (2019, p. 6) conclude, "interfering with imagery of desired stimuli weakens its emotional and motivational impact, providing persuasive evidence of a causal relationship between mental imagery and its emotional and motivational response".

The focus of public health interventions often lies in engaging inactive adults in physical activity. Guided imagery has been particularly effective in modifying self-determined motivation toward exercise as compared with health information sessions and peer mentoring (e.g. Giacobbi *et al.,* 2014), as well as encouraging weight loss and physical activity (Kim *et al.,* 2011). The success of these interventions is apparent from their continued popularity in public health, spurred by evidence that not only does mental practice improve attitudes towards exercise, but that "mental imagery of a future behaviour can influence actual behaviour" (Renner *et al.,* 2017, p. 370). Andersson and Moss (2011) found that audio-delivered imagery scripts significantly increased self-reported exercise behaviour in adults. Similarly, Kim *et al*. (2011) reported increases in self-reported exercise, goal orientation, intentions, and action planning with the use of imagery scripts.

Medicine has also greatly benefited from mental imagery, using it to ease depression, reduce blood pressure, lessen headaches and pain, improve arthritis symptoms (Giacobbi *et al.,* 2015), and even target cancer cells (Fezler, 1989; Roffe *et al.,* 2005). For medical practitioners, imagery interventions have improved skill acquisition and reduced stress levels. Imagery is frequently used by surgeons as preparation for operations. Medical students who participated in two imagery sessions showed greater surgical skills on live rabbits compared to those who only studied textbooks; and similar findings were established in a study with

gynaecology residents, with those in the imagery group showing significantly better performance of cystoscopies as well as higher self-perceived level of preparedness compared to those in the control group (Komesu *et al.,* 2009). In another study, student nurses who received imagery training performed significantly better on a psychomotor skill (i.e., blood pressure measurement) than those who did not (Wright *et al,* 2008).

3.6 Education

In education, imagery was initially seen as a way of improving and enhancing the learning experience for specific groups of students that required additional support: for example, Town (1914) highlighted the effectiveness of using mental imagery with blind students, whilst Omizo (1981) demonstrated that it could be a technique to promote learning with hyperactive children by helping them to relax. Later, it was recognised that imagery could also further and enhance the learning of gifted children by encouraging creative development and divergent thinking skills (Wheatley *et al,* 1986).

Thus, imagery also came to be viewed as an educational tool to develop specific skills in the classroom. In particular due to its ability to stimulate the right hemisphere of the brain, i.e. the side that is responsible for creativity, imagery was regarded as contributing to creativity within students (ibid). The advocating of imagery use by Piaget (1964) in helping children to make sense of the abstract and form their own observations also helped to create interest in imagery as a tool. Subsequently, imagery has been commonly used in education to encourage skills such as reading, to improve comprehension and recall, to build vocabulary and improve writing skills.

Educational research has also highlighted the potential of imagery to influence affective states, particularly in the area of increasing awareness of the self and enhancing self-image (e.g. Hazler and Hipple, 1981). Imagery has also been used successfully as part of motivational interventions involving future selves. An early example of this is its use as part of a 'Life-Planning Workshop' (Brown, 1980) in which students imagined their fantasy life and then aligned it with more realistic expectations. Since then there have been several high profile motivational intervention programmes, including Oyserman *et al's* (2002) School-to-Jobs programme and Sheldon and Lyubomirsky's (2006) Best Possible Selves writing project. Both of these interventions involved students imagining themselves having

successfully achieved their goals and both were found to have positive effects on student behaviour and motivation. Hock *et al's* (2006) Possible Selves Programme asked students to represent their positive and feared future possible selves in the form of a tree.

Educators have long recommended the use of imagery with students, and a quote in 1897 by the educational reformer and philosopher John Dewey illustrates this:

> I believe that much of the time and attention now given to the preparation and presentation of lessons might be more wisely and profitably expended in training the child's power of imagery and in seeing to it that he was continually forming definite, vivid, and growing images of the various subjects with which he comes into contact in his experience.
> (Dewey, 1897: pp. 79-80)

It is clear that Dewey believed that children have a natural ability to create images in their mind, but that this ability needed to be developed and trained in the classroom. Wheatley *et al.* (1987) argue that schools should introduce children to mental imagery exercises early on in their academic careers, so that students are able to use their internal visual imagery to create visual representations in their minds. They point out that a focus on verbal and written communication in the curriculum has led to 'visual atrophy' whereby students are overly word-dependent and struggle with the formation of images.

In addition, there are other factors that will affect the success of imagery interventions, and one important consideration is the focus on the outcome or the process. Pham and Taylor (1999) asked one group of students to visualise doing well in their exam, i.e. imagine the outcome, and the other group to visualise the steps they would take in passing their exam, i.e. imagine the process. They found that the 'process group' achieved better results, attributing this to the fact that they had been able to plan their way to their goal, and in doing so also overcame anxiety issues, as compared to the 'outcome group'. This could also explain the success of the students in Zander's experiment (2002), referred to in Chapter 1, who had explained how they would achieve their 'A', and in doing so had also planned a path or the process to it.

Another possible factor in imagery success is perspective. Vasquez and Buehler (2007) asked students to visualise the successful completion of an academic task in either the first or third person. Although achievement outcomes were not assessed, the results showed the third person perspective to be more effective in increasing motivation, as the task was perceived as more important in this perspective. Libby *et al's* (2011) research provided further support for this, whereby they discovered that visualising in the third person perspective increased the likelihood of actually going on to perform that behaviour (in their case, to cast a vote). It was suggested that seeing themselves from an 'observer' perspective made participants want to live up to that image. It seems logical that if we think we are being watched, we are more likely to do something. Although some learners may have a preferred perspective, and find it difficult to visualise in another, nevertheless this research highlights the importance of perspective in L2 imagery script design.

3.7 Summary

Although initially associated with New Age culture and mysticism (e.g. Gawain, 1978), the concept of achieving goals through visualisation has been legitimised through empirical research in psychology and its systematic application in sports. This chapter has considered the successful application of mental imagery across several fields including sports training, psychotherapy, public health, and education, and demonstrated that the ability to visualise actions, scenarios, and outcomes not only aids in physical skill development but also plays a significant role in emotional regulation, stress reduction, and motivation.

3.8 Implications for L2 Practice

The literature review so far has explored the role of mental imagery in various disciplines, demonstrating its effectiveness in enhancing performance and outcomes. Given these benefits, how does mental imagery apply to language learning? As discussed in Section 2.3.2, mental imagery shares significant neural overlaps with actual perception, making it functionally equivalent to real-life experience. This functional equivalence allows imagery to serve as a powerful simulation tool, enabling learners to practice tasks mentally without physical engagement. For instance, just as an individual can visualise retracing their steps to locate lost keys, language learners can use imagery to mentally rehearse conversations, presentations, or writing tasks in the target language.

A particularly effective application of mental imagery in language learning is the creation of vivid, goal-oriented visions. Let us take a practical illustration using an example of a language learner who creates a vision in which he or she is using the L2 in order to travel abroad. If we recall that vision can be in any sensory mode or combination of sense modes (Kosslyn *et al.,* 2006), then the learner may not only picture themselves in their desired destination, but also imagine the sensation of being there. They might feel the warmth of the sun on their skin, experience a tingle of excitement, or feel the fluttering of nerves in their stomach as they summon the courage to walk up to a group of native speakers and hear themselves conversing in the L2. These images enable the vision to take on the form of a multi-sensory, three-dimensional simulation that is experienced as if it were real.

Repeated visualisation of such scenarios functions as a form of mental practice, progressively making the imagined experience more accessible. Dörnyei (2020) describes this as "chronically accessible" imagery, where well-rehearsed mental representations become automatic. When faced with a real-life situation similar to the envisioned one, learners are more likely to react instinctively and confidently, as their brains have already been primed for the experience (Ranganathan *et al.,* 2004; Holmes & Mathews, 2010).

Moreover, automatic habits significantly influence behavior. A naturally shy student might avoid participation in classroom discussions, but through mental practice, this tendency may be reshaped. Imagery offers a way to rewire limiting beliefs and reinforce new behavioral patterns. Research by Lazar *et al*. (2005) found that experienced meditators exhibited structural changes in brain regions associated with attention and sensory processing. Specifically, their prefrontal cortex was thicker—a trait linked to higher academic performance (Menary *et al.,* 2013) and reduced impulsiveness in young learners (Schilling *et al.,* 2013). Such findings suggest that sustained mental practice can lead to measurable neurological improvements in learners that support language acquisition and academic success.

While motivation and emotional regulation are central to language learning, cognitive functions also play a significant role. In Chan's (2014) study of PhD students, mental imagery was not only used for presentation rehearsals but also for practicing the language skills required for these events. Returning to the example of the learner building up the confidence to begin a conversation while travelling, they could also mentally rehearse specific phrases,

vocabulary and sentence structures; thus strengthening cognitive linguistic processing alongside affective engagement.

However, we must remember that imagery is internally generated and operates in a self-contained cognitive space. One important implication for language learning is that without external feedback, learners may reinforce incorrect structures or develop an unrealistic sense of proficiency. For example, mentally rehearsing a conversation in a second language does not provide the grammar and phonetic adjustments that actual speaking practice with native speakers or language instructors would offer. Consequently, while mental practice strengthens confidence and fluency, it should be supplemented with authentic interactions to ensure accuracy and refinement.

Nevertheless, the flexibility of imagery also provides advantages. Because it is internally constructed, it allows learners to simulate idealised versions of their language use—imagining themselves speaking fluently, responding quickly and navigating complex linguistic situations with ease. This self-generated rehearsal can enhance motivation and self-efficacy, encouraging learners to persist despite difficulties. Furthermore, because mental imagery is not constrained by environmental factors, learners can engage in language practice anytime and anywhere.

Ultimately, while mental imagery alone cannot replace direct language exposure and interaction, it serves as a powerful supplement that can enhance learners' confidence and engagement with the L2. On a neural level, the functional equivalence between imagery and actual perception highlights the brain’s capacity to strengthen cognitive and emotional pathways through mental simulation. Repeated visualisation can lead to structural and functional changes in the brain, reinforcing language-related neural networks and enhancing automaticity in language use. However, to maximise the potential of imagery, learners should aim to make their mental simulations as vivid, detailed and realistic as possible. According to Decety and Jeannerod (1995), the greater the functional equivalence between imagery and actual experience, the stronger the neural activation, in preparation for real-world application. With this in mind, we will now move on to the next chapter of the literature review: mental imagery ability and strategies for its enhancement.

Chapter 4 Mental Imagery as an Ability

4.1 Introduction

The success of any imagery intervention will rely not only on its design but also on the individual's capacity to visualise effectively. Paivio's work (1986) on imagery recognises that most people have the capacity to visualise but that this capacity will vary in terms of vividness and intensity. Encouragingly, however, as Rodgers *et al.* (1991) aver, imagery is a skill that can be improved.

This chapter will explore the concept of variability in imagery ability, exploring how individuals differ in their capacity to generate and manipulate mental images. Moreover, it will discuss strategies for improving these skills, emphasising methods to enhance the vividness, detail, and control of mental imagery. Understanding these nuances is crucial for implementing and optimising the use of mental imagery in interventions aimed at enhancing language learning through visualisation.

4.2 Imagery as a Skill

Imagery is a skill (Paivio, 1986), and as with all skills, levels of ability vary. If we ask two people to visualise an ant crawling towards a crumb on a red and white chequered tablecloth it is possible that one person may see a vivid video-like image of every aspect of the scene, whereas the other may not be able to see it as a picture at all but only as a concept. This variation in imagery ability has been confirmed by studies that have found "a wide distribution in the vividness of the visual images that different individuals generate" (Amedi, *et al.*, 2005; Hatakeyama, 1997; Marks, 1973; McKelvie, 1994; McKelvie & Demers, 1979 *as cited in Cui et.al, 2007*). As it is the visual cortex that is activated within the brain during imagery, unsurprisingly, a positive correlation has been found between people's visual orientation and their imagery ability (Amedi *et al*., 2005).

It is generally accepted that higher imagery capacity is linked with the potential to receive higher benefits from imagery interventions: "individuals with higher imagery ability experience more benefits from imaging compared to their lower level counterparts (Gregg, Hall, & Nederhof, 2005; Robin *et al.*, 2007; Williams *et al.*, 2013 *as cited in Williams & Cumming, 2015, p. 2*). With this in mind, it is necessary to consider how weaker imagers can

make more effective use of imagery in order to maximise its potential, and in doing so, a standardised measure to assess imagery ability is needed.

When referring to imagery ability as a measure, we are essentially looking at the *quality* of the images that a person is able to generate. This quality of image will be determined by measures such as "the vividness, controllability, visual representation, kinesthetic feelings, ease, and emotional experiences" (Gregg *et al.*, 2016, p. 141). Clearly there are several different dimensions of imagery ability, and the most commonly used criteria for assessing imagery ability has been 'vividness', which refers to the "luminosity and clarity of mental imagery, as well as the extent to which an individual's subjective experience of imagery is similar to actual perceptual experience" (Pearson *et al.*, 2013, p. 7). Based on this definition it is clear that vividness is an essential condition for enabling functional equivalence in effective imagery and perhaps in itself incorporates the other factors identified by Gregg *et al.* above. Anuar *et al.* (2015) further highlight the importance of ease of imaging and the relationship it has with vividness, whereby "an individual who finds it easy to image will likely generate a vivid image" (p. 2). Ease and vividness are therefore generally the two main dimensions that are measured when it comes to imagery ability.

4.3 How can imagery ability be assessed?

Many imagery ability tests have been devised and used, and in a comprehensive review of these tests, Pearson *et al.* (2013) considered 108 of these. Although their review was undertaken in the light of imagery for psychological disorders, the tests that were reviewed were not specific to clinical psychology and have been designed and used for imagery use in any field. These tests range from mentally picturing and calculating how many letters of the alphabet are straight or curved, to comparing animal sizes (for example, deciding which animal's tail is longer with two similar sized animals) to picturing two different times on a mental clock and identifying which has a larger angle between the hands. The categorisation of these tests by Pearson *et al.* (2013) according to function is extremely useful as it enables researchers to assess which is suitable for their purpose, such as if they wish to assess imagery controllability, or imagery spontaneity or different sensory modalities.

As mentioned, vividness of imagery is an important measure in assessing the quality of imagery, and a common imagery ability test is the Vividness of Visual Imagery

Questionnaire (VVIQ; Marks, 1973), and its revised version, the VVIQ-2 (Marks, 1995). In recognition of the motor aspect of sport imagery, the Vividness of Movement Imagery Questionnaire (VMIQ; Isaac *et al.*, 1986) and the subsequent revised VMIQ-2 (Roberts *et al*., 2008) were developed to assess kinaesthetic, as well as visual imagery. These questionnaires typically ask participants to imagine different physical movements and actions and rate the vividness of those images using a 5-point rating scale (1=very clear; 5=no image at all).

Although there are other tests that focus on different senses, for example the Clarity of Auditory Imagery Scale and the Vividness of Olfactory Imagery Questionnaire (see Pearson *et al.*, 2013). Andrade *et al*. (2014) point out that none of these tests assess imagery ability across all sensory modalities, which, as they state, "limits their usefulness in research that investigates imagery across sensory modalities" (p. 549). As vividness is related to multi-sensory engagement with the image, it is in part dependent on the person's multi-sensory imagery ability: the more senses that are involved, the more realistic the image will be. Further, measuring one sense will not give us a comprehensive picture of an individual's imagery ability. For instance, in an L2 context, a language learner may not be able to visually picture their ideal self; however, they may be able to feel the emotions or the physical sensations, or hear sounds, and this may also contribute to the richness and vividness of the image as much as a picture could.

As such, Andrade *et al.* (2014) developed the Plymouth Sensory Imagery Questionnaire (Psi-Q), which measures imagery ability across seven senses. The questionnaire asks participants to rate everyday scenarios on a scale of 1 to 10, for example 'imagine the smell of newly cut grass' or 'imagine touching warm sand'. The test has been validated, uses simple language for common objects and scenes, and a further advantage of this test is that it can help to identify the sensory strengths and weaknesses of learners in their imaging ability so that these could be individually targeted and improved.

From the perspective of imagery function, the focus of most imagery tests traditionally was mainly on assessing cognitive abilities, in particular for motor imagery, and paid little attention to motivational imagery ability, which was ironic as studies have shown that athletes use the motivational function most frequently (Beauchamp *et al*., 2002; Hall *et al*., 1998). Therefore, Gregg and Hall (2006) developed the Motivational Imagery Ability Measure for Sport (MIAMS) in order to specifically measure this. The MIAMS requires

participants to read a description of a scenario which is common to sport, and then rate their image, firstly according to the level of emotion they feel and secondly according to the ease of imaging. Although the scale relating to ease of imaging is useful in illustrating the participant's ease in generating the image, the emotional component is also covered in the Psi-Q above, and it therefore seems that the Psi-Q would be more suitable to use in an L2 learning context, as firstly it is not specific to sport scenarios, and secondly measures emotional involvement as well as the other senses.

This section has provided a brief review of some imagery ability assessment tools that may be relevant in the context of measuring the ability of L2 learners to visualise their ideal self. As Pearson *et al.* (2013, p. 18) conclude in their review of imagery tests, "in selecting tests, consideration will of course need to be given to the specific disorder in question, as well as the pragmatic issues related to using experimental tasks in any given clinical population". When designing measures to assess imagery ability in L2 learning, careful consideration of learner-specific and situational factors will be required; nevertheless, these established instruments provide a helpful starting point.

Finally, it should be mentioned that measurement of a person's imagery ability has traditionally been by self-report, where participants are asked to visualise an image or scene and then rate its vividness using a Likert-scale. Interviews are also sometimes used to further explore the imagery experience of the participant. Introspection may not be the ideal measure, due to its subjectivity, but nevertheless is relied upon, as it is generally not possible to look inside a participant's head to see what they are imaging. Advances in neuroimaging have provided more objective methods. Cui *et al.* (2007) measured imagery ability by tracking blood flow changes in the visual cortex using fMRI. However, they acknowledged that this method is costly and impractical for most applications, making it more suitable for contexts where objectivity is crucial, such as legal eyewitness testimony. With ongoing progress in neuroimaging, future developments may enable more accessible and reliable measures of imagery ability.

Given these limitations, the studies in this thesis relies on self-report measures combined with qualitative analysis to assess the depth and nature of participants' visualised L2 selves. By incorporating open-ended written descriptions and thematic analysis, the

studies aim to capture both the content and vividness of participants' imagery while acknowledging the inherent subjectivity of introspective methods.

4.4 A Note on Aphantasia

Aphantasia, often referred to as mental blindness, is a condition where individuals cannot create mental images. The concept was first highlighted by Francis Galton in 1880 when he asked 100 men to describe their breakfast tables using mental imagery (Galton, 1880). Among his respondents, some, including his cousin Charles Darwin, could visualise vividly, while 12 of the 100 men, mostly scientists, reported an inability to visualise anything. Galton described these individuals as having a mental deficiency (ibid).

Despite research on mental imagery dating back to the early 20th century, aphantasia has only recently come into focus. However, it was only recently that the term 'aphantasia' was coined by Zeman *et al.* (2015), inspired by a case in 2003 where a man (referred to as 'MX') reported losing his ability to visualise following a heart procedure (Zeman, 2010). Following the publication of the initial findings on MX in 2010, Zeman *et al.* (2015) received numerous reports from individuals self-identifying with similar experiences and they estimated that approximately 2% of the population has this condition. However, Wicken *et al.* (2019) suggest that self-identified aphantasics may exhibit poor metacognitive awareness of their imagery abilities or have a tendency to report these abilities as diminished or absent. Nevertheless, neuroimaging and binocular rivalry tests have corroborated some cases, indicating impaired visualisation ability in self-diagnosed aphantasics.

Whether this inability is a deficiency or disadvantage remains uncertain. There are some reports that aphantasia can affect autobiographical memory and face recognition (prosopagnosia); however, aphantasics appear to compensate for their lack of visual imagery ability by using a wider variety of brain areas for tasks (Marks, 2019). Marks proposes that aphantasics utilise non-visual brain circuits, verbal intentions, schematic spatial imagery, and non-imaged action plans as alternative control systems. In this way, they can recognize faces, describe routes, and draw maps from memory but do so using non-visual brain circuits, i.e. through verbal rather than depictive coding. There are some instances of highly creative people being documented as aphantasic, such as American software developer Blake Ross and former Pixar president Ed Catmull. Glenn Keane, the creator of Ariel (The Little

Mermaid) was also discovered to have aphantasia, indicating that the condition does not necessarily inhibit creativity (Gallagher, BBC News, April 2019).

As noted in the Introduction, my own aphantasia was discovered during the course of this PhD—a revelation that was particularly surprising and unexpected given my research focus on visualisation in both my MA and PhD studies. As my personal experience does not directly pertain to the literature review, I have provided a brief account of my aphantasia in Appendix G for contextual relevance.

4.5 Imagery Ability: how can it be improved?

We have seen that imagery ability as a measure refers to the quality of the image that a person generates. If we now turn to imagery ability in a practical usage context, imagery ability can be defined as "an individual's capability of forming vivid, controllable images and retaining them for sufficient time to effect the desired imagery rehearsal" (Morris *et al*., 2005, p. 37). Imagery interventions have shown that imagery effectiveness is influenced by imagery ability and it has been demonstrated that those with higher imagery ability will receive more benefits from imagery (e.g. Hall *et al.,* 1998; Robin *et al.,* 2007). So the question for most people then is *how* to improve the elements of vividness and control to improve their imagery and make it more effective.

Surprisingly, despite having recognised mental imagery as a skill that can be improved, "to date, very little is known about methods to develop MI (motor imagery) ability" (Williams et *al.,* 2013. p. 61). There have however been several techniques proposed that, whilst not targeting imagery skills directly, aim to improve the conditions or components of the imagery. These will be considered in detail below, but before proceeding to these, it is important to highlight that one factor consistently linked with improved imagery ability is frequency of use.

As with any skill, 'practice makes perfect', or certainly leads to improvement, and this was verified in a study by Rodgers *et al.* (1991) which found a significant increase in the imaging ability of a group of skaters after 16 weeks of imagery training. Other studies have also found a positive link between the amount of time spent in imaging and the improvement in performance (see Cooley *et al.*, 2013), and after reviewing various types of imagery training exercises used in sport, the authors concluded that "spending time before an imagery

intervention to increase participants' awareness of imagery use and their imagery ability is likely to facilitate subsequent imagery use" (p. 11). In addition, a study specifically on motivational imagery found that "more frequent use of the motivational imagery functions may lead to positive benefits including better regulation of arousal and anxiety to help athletes achieve their ideal performance state, maintaining mental toughness, enhanced feelings of being in control, and improved self-efficacy" (Gregg *et al.*, 2011, p. 139). Consistency and practice are therefore key, and imagery needs to be used systematically and regularly to result in effects. One added benefit of using imagery more often is that it will lead to an increase in the person's 'meta-imagery' skills (Moran, 2002), whereby they will develop a greater understanding of the strengths and weaknesses of their own imagery and implement the necessary improvements autonomously.

In addition to increasing frequency of imaging, ensuring that the conditions for effective use of mental imagery are in place is crucially important in improving the imagery experience for users. One of these conditions relates to the function of the imagery, whereby a basic premise of effective imagery is that the function used must match the intended outcome (Martin *et al.,* 1999): so that if the aim is to improve confidence, then the appropriate type of motivational imagery should be used, or if the purpose is to learn a new skill, then cognitive imagery should be used. However, Cumming and Williams (2013, p. 72) observe that "the relationship between imagery content and function does not appear to be as straightforward as originally believed" and argue that Martin *et al.*'s model is now rather simplistic, given the advancements in knowledge around imagery. They therefore propose updating this with a 'revised model of deliberate imagery use':

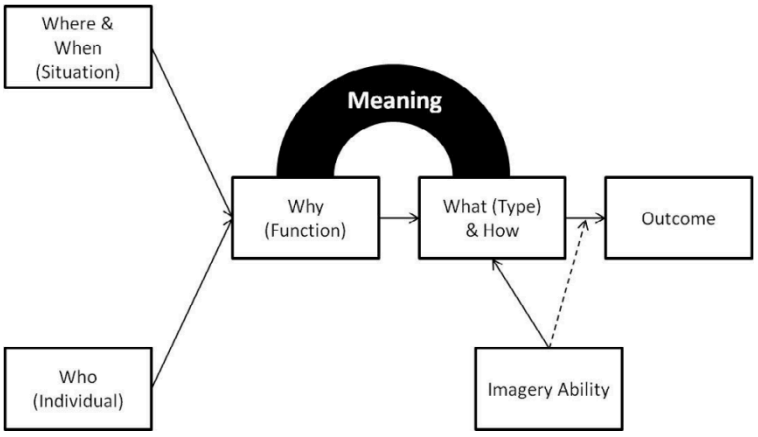


Figure 5 *Revised applied model of deliberate imagery use (Cumming and Williams, 2013)*

This model takes a more personalised approach compared to the original, in that it recognises the importance of imagery type (what) and imagery function (why) in the context of personal meaning. Referring to imagery theories relating to meaning, (Ahsen's (1984) triple code model, Lang's (1979) bioinformational theory) the authors state that "imagery is a highly personalized experience that can mean different things to different individuals" (Cumming & Williams, 2013, p. 73). Therefore, the exact same image may carry different connotations for different people, and this needs to be recognised. Furthermore, they add that imagery will vary according to the situation in which it is used, for example, at home or at the workplace (where and when), the individual's personal characteristics, for example whether they are anxious or calm (who), and that these factors should be taken into account when designing imagery content, so that interventions are "customized to meet the needs of those involved to be maximally effective" (2013, p. 71). They also state that this model can be used in different settings and disciplines, not only in sport, to inform "effective intervention design and offer key considerations" (ibid).

4.6 Imagery Enhancement Techniques

The need for personalised and more meaningful imagery is currently being stressed in imagery interventions, and this now leads us on to some techniques that are being used in sport to enable this practically.

4.6.1 Script Personalisation

The most common method to facilitate visualisation is guided imagery through scripts, which are "pre-planned descriptions of complete imagery scenarios, developed with the desired outcome of the imagery use in mind" (Cooley *et al.,* 2013, p. 1). The content of the script is therefore essential to what the person will image and their overall imagery experience.

A systematic review of guided imagery interventions in sport (20 interventions from 2001 to 2011) that focused on scripts (Cooley *et al.,* 2013, p. 13) showed that "interventions varied greatly, particularly regarding the duration, dose response of imagery practice, modification of imagery scripts, imagery training prior to intervention, method of script presentation, timing of script use and imagery generation, and the instructions given to participants prior to imagery use". The authors argue that these methodological variations

should be minimised in order to standardise interventions, improve their quality and enhance imagery effectiveness.

With regard to imagery scripts, they found that 40% of interventions used generic scripts. In the cases that imagery scripts were personalised, the methods used to do so, and the extent to which they were personalised, were also inconsistent. They argued for the need for all scripts to be personalised, and since then a practical set of guidelines for script design, which includes a checklist for imagery coaches has been published (Williams *et al.,* 2013). Based on the 5 Ws (who, what, why, when, where) of the 'Revised applied model of deliberate imagery use' (Figure 5), the essence of these guidelines is that by accounting for the 5 Ws, the script is highly tailored to the user's characteristics. For example, when incorporating the 'who' aspect, they recommend considering the user's imagery ability and preferences, anxiety and confidence levels, motivational tendencies (e.g., ego or task oriented), age and competitive level. This is clearly a shift away from the generic script to the highly personalised. Wilson *et al.* (2010) found empirical evidence for improved performance responses and imagery ability after the use of personalised scripts, and it can also be proposed that by eliciting user input and involving them throughout the process they will be "more receptive to the process and motivated to use the script" (Williams *et al.,* 2013. p. 110). For an L2 practitioner using imagery with a class, personalisation to such an extent may not be possible, but at the very least it should be tailored to the overall needs and characteristics of the class.

4.6.2 Layered Stimulus and Response Training (LSRT)

Layered Stimulus and Response Training (Williams *et al.*, 2013) builds on the bio informational theory (Lang, 1979) (see 2.3.5) on the composition of images, using a step-by-step approach to incorporate stimulus and response propositions by adding them "to the original image in separate layers" (Williams *et al.*, 2013, p. 61). This 'layering' technique has been used before in sport to generate complex images (Calmels *et al.,* 2004; Nordin and Cumming, 2005); however, Williams *et al*. (2013) adopted a new approach by specifically incorporating propositions in the form of stimulus and response. They called this method LSRT. Furthermore, their study was novel in that they targeted weak imagers, as "the majority of imagery studies and interventions involve individuals with relatively high

imagery ability and often exclude those who fail to meet certain criteria when screened for their imagery ability" (ibid, p. 62).

The LSRT study (ibid) was conducted with 24 inexperienced and completely non-experienced golfers over a period of 4 days. During the intervention, traditional motor imagery (where participants imagined themselves successfully rolling the ball into the hole) was compared with LSRT imagery (where participants layered additional propositions to the image each time), in terms of its effect on both imagery ability and shot-putting performance. A third group using only visual imagery, whereby they only imaged the ball rolling into the hole, and not themselves carrying out the action, was also assessed for the same. The intervention was carried out over 4 sessions, and in each session all participants would verbalise what they 'saw' and comment on the difficulty or ease of imaging. Crucially, the whole process was participant, and not researcher-generated, in that participants created their own images, and generated and added their own propositions when they were ready.

As a result, participants in all groups found that through practice they were able to maintain the image for a longer period, and in fact this had started to happen by Session 3. This confirms that practice alone can impact upon the ease of imaging and suggests that this can happen quite quickly. In terms of the actual composition of the image, the group using motor imagery (MI) reported an improvement in visual ability, i.e., what they saw, whilst the LSRT technique saw the group report improvements in both their visual and kinaesthetic imagery, i.e., what they *saw* and what they *felt*. Finally, in terms of performance, only the LSRT group saw an improvement in their actual golf-putting skills. It seems then that by explicitly incorporating response propositions, participants experienced a greater emotional involvement with the image. The effect on imagery ability and actual performance may also be attributed to this greater involvement, but also to the fact that the layering method made the imaging process easier for the novice user. The authors observe that with this layering technique, the "individual may then more easily generate, transform, and maintain the image, which in turn, could lead to greater motor learning or performance" (Williams *et al.,* 2013, p. 61). More research is needed on the LSRT method, and it could well be possible to test this in L2 learning imagery interventions.

4.6.3 The PETTLEP model

The PETTLEP approach to using motor imagery (Holmes & Collins, 2001) is a highly practical model that incorporates both cognitive and motivational aspects of imagery. This 7-step approach details all of the elements that should be considered when designing an imagery intervention. By including these elements that reflect the real-life situation, it aims to increase the similarity of the imagined performance and the real performance and match them as closely as possible:

Physical	*Don't actually perform the physical movement* *Allow small body movements to help make the image more realistic* *Wear the same sports clothing as you are wearing in the image* *Hold the sporting equipment as you are holding in the image* *Feel the body's sensations*
Environment	*Stand in the same environment as the image*
Task	*Image what you would see and feel as if actually performing the action*
Timing	*Perform the imagery in real time*
Perspective	*Combine visual and kinaesthetic imagery* *Maintain your preferred visual perspective* *You may switch visual perspectives* *Perceive the movements as if a camera was in your head*
Other	*Have your eyes closed* *Image in the most comfortable way for you* *Image as vividly as possible*

Figure 6 *PETTLEP model (Cooley et al., 2013)*

It therefore differs from traditional imagery in that the imagery is carried out in the actual performance environment, wearing the actual clothes, and holding the relevant piece of equipment. Studies (e.g. Smith *et al.,* 2007, Anuar *et al.,* 2015) have found that it is these two elements in particular - environment and physical- that were most helpful in creating more vivid images.

The PETTLEP is now well-established in sport and is used as a checklist for designing imagery interventions. Many studies have shown that using the PETTLEP approach to imagery enhances performance, and that in fact the more elements that are incorporated the better the results (e.g., Smith *et al*., 2007, 2008; Wright & Smith, 2009). However, it is also recognised that using all seven elements in an imagery intervention,

especially with those who are not experienced imagers, may lead to overload. Quinton *et al.* (2014) used a layering approach (similar to LSRT) with the PETTLEP, starting with the elements that were easier to image (physical, environment and task) and adding the more complex elements, such as timing and emotions later on. Their study did not find any improvements in performance or imagery ability, and this may have been because their study was with young children, and also because the children did not have enough imaging sessions over the intervention (twice a week over 5 weeks). It is recommended therefore that in order to see results, imagery sessions should be more frequent: at least three times a week, take place over a longer period of time and be more personalised (Wakefield & Smith, 2009).

4.6.4 Functional Imagery Training (FIT)

So far this chapter has discussed imagery enhancement techniques that have been developed in sport psychology, but a motivational intervention has more recently been designed in a healthcare setting. Mental imagery is a commonly used tool in psychotherapy, but Functional Imagery Training (FIT; Andrade *et al.*, 2016) is an imagery plan designed to help sustain motivation in the longer term by making imagery use routine. Initially trialled in Australia for alcohol misuse disorders, the 5-month programme involved the provision of support over the phone and internet, supported by a smartphone app that provided reminders, notifications, photos and audio messages to support imagery use and maintain motivation.

Generating initial motivation is considerably easier than maintaining it over time. A common scenario that illustrates this is the one of weight-loss; countless people start diets every day, full of motivation, only to succumb to temptation a few days later. Perhaps the goal seems too difficult to reach and so the initial motivation fades. Recognising this, Andrade *et al.* (2016, p. 57) recommend the use of Functional Imagery Training (FIT), so that "large, distant goals, such as being healthier, are deconstructed into smaller, proximal goals that are more concrete and are more easily and vividly imagined".

In the first study to empirically test FIT, Andrade *et al.* (2016) used multisensory imagery in a 40-minute session with participants; the aim being to change their eating behaviours by reducing snacking. The FIT intervention was successful in that it led to an increase in self-regulated behaviour when it came to avoiding temptation and short-term satisfaction. As a result of their FIT intervention, the researchers found "an increase in the

frequency of motivational thoughts about cutting down on snacks between meals, a decrease in the number of snacking occasions, and a reduction in overall consumption of snacks" (Andrade *et al,* 2016, p. 260). This was attributed to "vivid, highly valued goal that imagery will compete with craving imagery at *key decisional moments*" (ibid) and thus enable the dieter to continue on their healthy eating journey. It is these 'key decisional moments' that often act as obstacles, and eventually determine the successful achievement of the goals that we have set for ourselves. From a language learner's perspective, one such key decisional moment might be the temptation to procrastinate and not begin their language homework, or it might be to avoid attending an event in order to avoid native speakers, despite having planned to, or making the decision to watch a film in their first language rather than the L2.

As with all motivational plans, people need cues and reminders about their goals. With an imagery-based programme also, language learners will sometimes need reminders to use mental imagery. In the FIT programme, participants used something that they did regularly, such as washing their hands or climbing the stairs, as a cue for imagery. Thus, every time they performed that action they would be reminded to carry out the imagery, and this seems a very simple and effective technique to use with language learners as a reminder to activate their ideal selves. Over time, it can be hypothesised that the cues would be triggered automatically. This is certainly a promising technique that could be used to practically implement any Vision Intervention Programme.

4.7 Summary

We have seen that mental imagery is a complex and multidimensional construct, incorporating various functions and senses, and that imagery ability is difficult to measure objectively. At the same time however, it has become apparent that imagery ability does have an impact on imagery effectiveness, whereby those that are better at imaging will likely receive more benefit from the process. This is an important implication for L2 imagery practice, in that an imagery intervention with a language learner who has low imagery capacity may be of little use; therefore, studies that consider the quality of imagery in the context of the ideal L2 self are needed. It is a positive fact that it has been recognised that mental imagery has applications beyond sport and psychotherapy alone; and that sport psychologists, for example, are working towards the "eventual goal of developing guidelines for imagery researchers and applied practitioners" (Williams *et al*., 2013, p. 61).

Several techniques for imagery enhancement have been discussed in this chapter, and it appears that the layering method may be a suitable way to introduce imagery to L2 learners, especially if they are new to mental imagery. It does seem that adopting a structured approach to imagery through layering would be beneficial for those inexperienced at imaging, whether the language learner or the teacher/imagery guide. Using layering, they will begin with a simple image, and then add further details to build up the image step by step. Layering could also be used by taking a sensory approach and incorporating different senses one at a time, with the aim of building a more vivid and multisensory image. Or this could be done by using the PETTLEP model, which has also been shown to encourage sensory awareness by building these elements through layers.

Having now thoroughly examined mental imagery, we will now shift focus in the final chapter of the literature review to the primary context of this thesis: vision and the L2 Motivational Self System (L2MSS).

Chapter 5 L2 Motivational Self System

5.1 Introduction

The field of Second Language Learning (SLA or L2 Learning) has witnessed an interest in the utilisation of vision to implement motivational strategies. This interest in the use of imagery within SLA can be primarily attributed to the L2 Motivational Self System (Dörnyei, 2005, 2009), which highlights the importance of vision in shaping and affecting language learners' motivation.

This chapter will begin with a broad introduction to the L2MSS and Ideal L2 Self, and then conduct a more detailed exploration of the concept of vision, particularly honing on its motivational features. An overview of relevant research in the field will then be provided, with particular emphasis on the practical application of vision interventions.

5.2 The L2MSS

The L2 Motivational Self System (L2MSS) recognises the importance of language learners' visions for their future, and identifies the two most influential future self-guides for L2 learners: the Ideal L2 Self and Ought-to L2 self. A third element of this paradigm highlights the part that immediate situational factors will play in affecting motivation, recognising that motivation is not solely influenced by future-oriented ideal or ought-to selves, but also by the learner's present experiences and interactions in the language learning environment (see Figure 7).

1.Ideal L2 Self, which concerns the L2-specific facet of one's ideal self:if the person we would like to become speaks an L2 (e.g., the person we would like to become is associated with travelling or doing business internationally), the ideal L2 self is a powerful motivator to learn the L2 because we would like to reduce the discrepancy between our actual and ideal selves.

2.Ought-to L2 Self, which concerns the attributes that individuals believe they ought to possess to avoid possible negative outcomes; such as perceived duties, external expectations, and obligations may therefore bear little resemblance to the individual's own desires or wishes.

3.L2 Learning Experience, which concerns situation-specific motives related to the immediate learning environment and experience (e.g., the positive impact of success or the enjoyable quality of a language course).

Figure 7 *The L2 Motivational Self System (Dörnyei & Chan, 2013, p.2)*

Drawing on Markus and Nurius' (1986) theory of Possible Selves and Higgins' self-discrepancy theory (1987), the L2MSS states that if the learner is aware of the kind of person they would like to become in the future they will be motivated to reduce the discrepancy or gap between their current self and their ideal self. Therefore it is proposed that if a language learner possesses a clear and strong vision of a successful self-guide, they will be driven forward to realise and fulfil that vision. As the Ideal Self is based on our own desires, whilst the Ought-to Self is externally directed, it is the Ideal L2 Self that is focused on as a potential driving force for motivation.

Dörnyei (2009) acknowledges the multi-faceted motives of language learners that may influence their learning behaviour on a day-to-day basis at any point in time, both instrumental and integrative, for example financial needs or the impact of a new relationship. However, the significance of the L2MSS is that by relating language learning motives to the learner's vision it frames motivation within the bigger picture, and this approach seems well-suited to conceptualising motivation relating to a long-term activity. The premise behind this model is that successful second language learning requires a long-term commitment; and if the desire to learn a language can be framed within the learner's long-term vision, then L2 motivation will receive a powerful impetus.

5.3 The Ideal L2 Self

But is it as simple as this? Is it really possible to achieve anything if we can realistically visualise it? If we consider that the vision is based on the depiction of an ideal self in an ideal future, the notion of 'ideal' may immediately raise alarm bells. Ideal often reflects a level of perfection that "exists only in the imagination; desirable or perfect but not likely to become a reality" (Oxford Dictionary). For example, when we use the expression 'in an ideal world, I would…', we know full well that this ideal world will never exist, and we are simply fantasising! Ideal, in this sense, becomes synonymous with utopian, hypothetical and even fictitious. Similarly, a person who is described as idealistic stands accused of not being

grounded in reality; somebody who is unrealistic, perhaps a little naïve and certainly impractical.

We also commonly use 'ideal' to refer to a person that we admire, for example, 'my father is my ideal' or 'I see Barack Obama as my ideal person'. In this case, the ideal may be more realistic in that it identifies a concrete example for imitation, and provides a specific standard to aim for. Nevertheless, there may still be an aura of awe surrounding this ideal person, leaving us with the impression that this ideal can be pursued, but will likely remain out of our reach. This interpretation is especially befitting if we consider the origin of the word ideal from the Latin term *idealis,* which was used to refer to something that exists only as an idea (Online Etymology Dictionary, npg).

So, what do we mean when we use 'ideal' in the case of a motivational vision? Is it the depiction of a future so perfect that it will always remain hypothetical and out of reach? It may be argued that if this is the case then vision is in fact based on fantasy, likely to result only in self-deception and disappointment. However, here, we must recall that the vision is of our *possible* selves, rather than *impossible* selves, and that the ideal self is in fact one of these possible selves. Possible selves "incorporate essential features of the actual self" (Markus & Nurius, 1986, p. 955) and in fact are so "intimately connected" (Markus & Nurius, 1986, p. 954) to our actual or current selves that they act as "cognitive bridges between the present and the future" (p. 961). The ideal that exists in a motivational vision can therefore be viewed as a 'realistic' or 'pragmatic' type of idealism. One definition of vision is a "plan for the future with imagination or wisdom" (Oxford dictionary), and this would appear to be the most appropriate; while it is fanciful in its optimism, it is also wise in its foundation by presenting a future that can be plausibly achieved.

Therefore, in a vision, the ideal taps into our unrealised potential and refers to our 'better self' or 'best possible self', which then provides a benchmark to strive for. Research (e.g. Pham & Taylor, 1999) has found that mental simulations are in fact limited by reality: people will normally only visualise the possible, and these visualisations remain within the boundaries of reality, rather than fantasy.

5.4 Vision

We have already explored mental imagery as a general phenomenon in the previous chapters. As we have seen, although mental imagery is conceptualised in its basic form as consisting of internal reconstructions of prior perceptual experience stored in our memory, we are able to use these representations and reassemble them in order to construct new ones for the future (Cumming *et al.,* 2018). Through prospective mental imagery we are able to create imagined futures, which are manifest in the form of vision.

We are familiar with the idea of 'vision' for creating a mental picture of a desirable future, as is witnessed by its popularity in business, sport, politics and self-development psychology. Strong vision is considered a prerequisite for strong leadership and success; in the corporate world, this process is referred to as 'visioning', with vision statements produced by businesses to define where they are heading. In the political arena, politicians also opine their visions for their states, a particularly emphatic example being the vision that Martin Luther King painted of a racially equal USA ('I have a dream').

Yet vision is not exclusive to leaders and high-achievers alone, and can be applied by any individual in any domain of their life. Personal vision can be used to imagine a desired future and this is the type of vision in question in this current thesis, i.e. the individual vision of students in relation to their desired L2 futures. As van der Helm explains, personal vision can help with "giving meaning to one's life, with helping to make shifts in professional careers and with coaching yourself in realising a personal dream" (2009, p. 98). From a language learning point of view, vision is pertinent because it possesses the ability to guide and give meaning to "the long-term, and often life-long, process of mastering a second language" (Dörnyei & Kubaniyova, 2014, p. 9).

So how does vision motivate? The next section will now focus on identifying some of the motivational factors at play, beginning with a consideration of how vision is conceptually different from a goal.

5.4.1 Vision differs from a Goal

While research into the motivational potential of vision and future self-guides has proliferated in SLA (see Boo *et al.*, 2015), some scholars argue that "it is not clear what contribution vision theory makes to knowledge of learner motivation over and above knowledge already

known from goal-setting theory" (Al-Hoorie & Al Shlowiy, 2020, p. 3). This critique suggests that vision and goal-setting theory overlap to such an extent that vision may be considered a repackaging of the latter. Pietluch (2019, p. 63) also observes that "the review of the relevant literature reveals that the notions of goal and vision are, on a frequent basis, used interchangeably to label one's future aspirations." To clarify the unique contribution of vision to L2 motivation and prevent any conceptual ambiguity, this chapter will begin by explicitly clarifying the relationship between goals and vision.

When we begin by examining the characteristics of vision, it becomes evident why confusion between goals and vision might arise. In a review of a range of visions, (including religious; political; humanistic; business; community; public policy and personal), van der Helm notes that, despite their disparate contexts, all visions share "a number of more or less universal characteristics and basic conceptions" (2009, p. 98), namely: 1) the future, 2) the ideal and 3) the desire for deliberate change. That is, they all portray a desired future that the individual or group of individuals is willing to strive for. However, a goal or a new year's resolution also comprises the same; for example, a goal to lose 5 kilos by the end of the year clearly relates to the future (the end of the year), the ideal (5 kilos lighter), and there is also presumably a deliberate desire for change, hence the setting of the goal.

Now let us consider the characteristics of a goal, which are that it comprises an objective and a future focus. Furthermore, it is internally represented, has the ability to direct behaviour and evokes a commitment to approach or avoid (ibid). These characteristics are equally applicable to vision, which also reflects a desirable end state set in the future for a motivational purpose. Vision and goal are in fact often used interchangeably in everyday parlance, having become buzzwords in self-development; although it is perhaps more common to find vision used in relation to a larger dream for the future, whilst goals are deemed to be more specific, short-term targets. For instance, SMART goals have become a widely used management tool, acting as smaller, more concrete steps to provide a roadmap towards the broader vision. So, are vision and goals essentially the same construct, differing only in proximity and specificity?

As we have seen, a vision is a mental image of a desired future outcome, and accordingly in the L2 motivation literature, vision is conceptualised as "a vivid mental image of the experience of successfully accomplishing a future goal" (Dörnyei, Henry & Muir,

2016, p. 22). Clearly, vision and goals are complementary concepts, as it is the future goal that provides the content for the vision. What is also clear however, is that the goal in the vision is experienced as a mental image. This has been referred to in the L2 literature as a 'qualitative distinction'; whereby "unlike an abstract, cognitive goal, vision contains a strong sensory element" (Dörnyei, 2014, p. 12), and we can explore this distinction in more detail.

If we recall that mental representation refers to the format of information in our mind, Paivio's Dual Coding theory (1986) states that mental representation occurs through two codes: images and language. Using a simple example, when we think of a person, we will recall their name, or imagine their appearance in some sensory form, or do both. Similarly, when we think of a desired future outcome, it is represented either verbally, imaginally, or in both forms (quasi-pictorial) (Kosslyn, 1996). In essence therefore, the basic qualitative distinction between vision and goal refers to the mental code that is in action: propositional or depictive. Both are goals; however, henceforth, to avoid confusion, the term 'goal' will be used to refer to a desired outcome encoded verbally, and 'vision' for a desired outcome encoded imaginally.

Of course, it would be overly simplistic to take the either image or either linguistic approach for mental representation or for vision and goals. The current consensus in cognitive psychology is that "we humans can represent information in multiple ways, and such representations can be used flexibly in working memory or during mental imagery" (Kosslyn & Pearson, 2015, p. 10089). The Dual Coding theory (Paivio, 1985) states that both codes can be combined, and it is noteworthy that from a representationalist point of view, a goal is, in fact, conceptualised as primarily depictive, albeit supplemented with propositional information:

> Imagery provides the primary cognitive medium for representing end-states (goal-objects, situations, behavioral outcomes) and "trying out" different behaviours that might achieve those ends. The verbal system plays a secondary but no less important role in that goal-oriented imagery may be initiated by specific words and descriptions that refer to ends and means.
>
> (Paivio, 1990, p. 80)

As Paivio continues to explain, the image lays the foundation, whilst "the verbal system provides a powerful additional means" (ibid). That imagery is viewed as the key representational medium for goals appears logical, because when we think about something that we want to achieve in the future it is natural to form some kind of mental image (Ramnero & Tomeke, 2016). If we are formulating, for example, goals related to marriage and family, or career, or physical health; or if we are just thinking generally about our life goals and ideal self in five years' time, it is highly likely that we will do so using our imagination. Conway's description of mental imagery as "a type of information specialised for representing goals" (2004, p. 525) is thus apt, and as Marks points out, "the principal role of mental imagery is to perform "thought experiments" (2019, p. 11). However, in order to represent a desired outcome, one must also have semantic knowledge of what it involves (Moskowitz, 2012). An L2 goal, for example, could be initiated by a mental prompt, such as 'I wish to speak English confidently'. This may trigger a vision of oneself speaking the L2 confidently in an imagined scenario, and the details of this vision may then be expressed linguistically, perhaps in a journal, or shared aloud with somebody else. Thus, in reality, a goal is likely to be 'quasi-pictorial', i.e. represented through both images and words.

This combination of verbal and imagery code is a notion that is also present in L2 vision theory, albeit referred to more implicitly. Vision is described as "the sensory experience of a future goal state...or a personalised goal that the learner has made his/her own by *adding to it* the imagined reality of the goal experience" (Dörnyei & Chan, 2013, p. 454-455) (italics, my own emphasis); the inference being that the verbal goal is supplemented with the imaginary. Henry also mentions this idea of 'adding' to the goal, when he defines vision as "an additional sensory dimension that closely accompanies this goal" (Henry, 2020, p. 2). It may be that Dörnyei is also alluding to these two forms of representation when he explains that "the main feature of a vision is that it subsumes both a desired goal and a representation of how the individual approaches or realises that goal" (2014, p. 12).

L2 literature has also pointed out that vision, due to this additional element, is superior to linguistic goals alone (e.g. Hadfield and Dörnyei, 2013). This corresponds with the premise of the Dual Coding theory (Paivio, 1985) that coding in both formats is preferable, as it creates two separate memory traces, and therefore two potential channels for retrieval. If the verbal goal is forgotten, the image may still be recalled, and vice versa (although images are better known for their mnemonic effects). Therefore, in terms of its

mental representation, we can consider vision as an enhanced goal due to the encoding and retrieval of words and images together, thereby creating more efficacious memory and engaging higher order levels of cognition.

Given the conceptualisation of goals as images, it is surprising that mental imagery has not been more explicitly investigated in goal setting theory. Goal setting theory presents goals in a hierarchy - subordinate, intermediate and superordinate, and this is perhaps where the parallel lies: between vision and the superordinate goal (which is defined as relating to the ideal self) (Hochli *et al*., 2018). Superordinate goals are identity based and reflect personal values, adopt a longer temporal perspective, and are broader in their context (ibid). These characteristics align with vision, and therefore thinking about superordinate goals in particular will likely involve images.

To summarise, we have established that vision and goals differ qualitatively in their cognitive representation and format in representational terms. A vision occurs in a depictive code, characterised by sensory and imaginal elements, whereas a goal is encoded linguistically. In practice, a goal will likely comprise both formats, incorporating images as goals naturally align with vision. Consequently, inquiries into the 'overlaps' and 'parallels' between vision and goals are unnecessary, as they represent two aspects of the same construct: the desired outcome, viewed through different cognitive lenses.

5.4.2 Vision promotes Self-concordance

Visionary images are created through a process of introspection and mindfulness. This introspective process enables us to tap into our inner knowledge and intuition; and in fact, as Kaiser *et al*. (2013) contend, vision development does not only tap into, but is a "highly intensive knowledge-generating process in itself" (p. 3597). The type of self-knowledge that is harnessed in ideal self generation relates particularly to our passions, beliefs and sense of purpose in life; in other words, our core identity, or the "set of enduring individual characteristics" (Boyatzis & Akrivou, 2006, p. 327) that are unique to each individual. Indeed, in Boyatzis and Akrivou's (2006) tripartite conception of the ideal self, core identity is one of the key components of vision. The role of core identity is also recognised in possible self theory, whereby Markus and Nurius postulate that there is "a single underlying authentic self that is the essence of the person" (1986, p. 965). Other elements of the self may vary in accessibility, but this authentic self does not change and is chronically accessible.

Core identity has been linked in particular with personal values. Values underlie identity to such an extent that values have been described as goals in themselves. Sagiv *et al.*, (2017, p. 4) define values as "broad desirable goals that motivate people's action and serve as guiding principles in their lives". Locke and Henne also consider goals to be "the mechanism by which values are translated into action" (1986, p. 3), whereby goals become the means for pursuing and actualising one's values. Others focus more on the guiding role that values play in goal setting (Lewin, 1952). Whatever the nature of the relationship, it is clear that our visionary goals are guided by, and represent, our ideal values. And by connecting us with our deep-seated values, vision creates a kind of self-concordant motivation:

> Goal self-concordance is typically defined and operationalized as the extent to which a goal fits with the person's underlying values, feelings, interests, and desires, *relative* to being set and pursued for external reasons, such as to please others or to gain rewards, or because of feelings of obligation, shame or guilt.
> (Milyayska *et al*., 2015, p. 131)

As self-concordant goals are aligned with our deepest values and priorities (Sheldon & Elliot, 1999) when we are in pursuit of these we feel a sense of autonomy and proactive motivation (reference). In this sense, self-concordance can be viewed as an optimal mode of goal-striving (Kelly *at al.,* 2015). Research has found that people are more likely to pursue and persist at their goals when they are self-concordant, and in an educational context, students who set self-concordant educational goals expend more effort and as a result demonstrate higher motivation and goal progress (Werner *et al.,* 2016; Vasalampi *et al.,* 2012). In one study of students on an 8-week voluntary project, Lydon (1996) found that student commitment was higher when the task affirmed the student's core values, even when the project was experienced as stressful and difficult. Self-concordant goals have also been linked to lower distractions and obstacles, for example Milyavskaya *et al.*, (2015) found that people with self-concordant dietary goals reported facing less temptations. Werner *et al.,* (2016) point out that it might just be the case that self-concordant goals are perceived as easier and more natural and enjoyable to pursue, rather than it being the case that they induce more effort.

However, self-concordant goals are not set automatically; Sheldon notes that "people are typically unaware of their own implicit motivations and potentials, and they may pick goals that do not serve them well" (2014, p. 349). These non-concordant goals may sometimes be determined by others, or perhaps by one's own short-term impulses and desires. Not only might these lead to a waste of time and energy, but more seriously also to depression and action crises (Smyth *et al.,* 2020). Therefore, setting self-concordant goals is an important skill that needs to be developed consciously (Sheldon, 2014).

So how can the setting of self-concordant goals be encouraged? Research has found that activities which enhance insight and awareness of one's core identity play a key role in enabling self-concordance (ibid), and has identified in particular a link between mindfulness and enhanced self-concordant goal setting (Smyth *et al.,* 2020). A recent meta-analysis of 104 studies (Donald *et al.,* 2019) also demonstrated a positive correlation between mindfulness and prosocial behaviour. Ryan and Deci (2017) explain that "mindfulness, defined as the open and receptive awareness of what is occurring both within people and within their context, facilitates greater autonomy and integrated self-regulation" (p. 268), thus facilitating more reflective and self-concordant choices. It can be hypothesised that the enhanced self-awareness that is generated through vision will lead to greater mindfulness and therefore should be particularly helpful for the creation and selection of self-concordant goals.

Another benefit of self-concordant goals is that "self-concordant goals are not only pursued with greater commitment and determination, but they can also have a positive impact on well-being" (Dörnyei & Muir, 2016, p. 54). For when acting in line with our core identity and values we are identity congruent, and not only does this impact goal progress and achievement, but also our sense of satisfaction. We feel fulfilled when we feel that our motivations and actions are aligned with our personal values and the type of fulfilment this can lead to has been labelled as eudaemonic well-being (EWB). EWB is defined by Waterman *et al*. (2010, p. 41) as the "quality of life derived from the development of a person's best potentials and their application in the fulfillment of personally expressive, self-concordant goals (Sheldon, 2002; Waterman, 1990; 2008)". An Aristolean concept, eudaemonia refers to the "pursuit of virtue, excellence, and the best within us" (Huta & Waterman, 2014, p. 1426). It is derived from living in accordance with our morals and values. If we consider the origins of the word, 'eu' refers to 'good' and 'daemon' to 'spirit',

and eudaimonic well-being (EWB) therefore involves searching for this true self and acting in accordance with our authentic spirit.

5.4.3 Vision generates Positive Emotions

When we think about an episode from our past, we are able to relive the emotions of that event. Equally, when we simulate a future event via vision, we also experience the emotional consequences of that event (Holmes *et al.*, 2016, D'Argembeau *et al.,* 2011). And when that future event is of an ideal self it is highly likely that the emotions associated with it will be positive. As Csizer explains, "Imagery representing ultimate success can trigger strong positive emotions" (2019, p. 79). Although the precise relationship between emotions and motivation is ambiguous, it is recognised that emotions do have motivational qualities: "vision and emotions go hand in hand, and it is a widely held view that the motivational power of vision is a function of the emotions it evokes" (Dörnyei, 2020, p. 120). Emotions are generally believed to be motivational amplifiers, intensifying the scale of motivation, rather than leading to goal-directed motivational behaviour by themselves. Similarly, in Boyatzis and Akrivou's (2006) conceptualisation of the ideal self, the ideal self is "*fuelled* by the affect resulting from one's passion, dreams, and values" (p. 627) (italics, my emphasis).

The kind of affect that results from being in tune with core identity is positive, and one of the positive emotions that vision inspires is hope. Boyatzis and Akrivou (2006) maintain that the ideal self consists of three components: (1) an image of a desired future that is (2) emotionally fuelled by hope, and (3) reflects a person's core identity. According to this model, hope is the affective driver of the ideal self. A vision of a desired possible self can provide people with a glimpse, even if it is only momentary, of how their life can realistically change for the better. Neuroscience tells us that "images are interpreted as being similar to real emotion-arousing events due to overlapping activation patterns between imagery and perception" (Holmes & Mathews, 2010, p. 352). As the vision is thus perceived as reality, the visualiser will pre-experience future outcomes and the actual emotions of having achieved those outcomes. Furthermore, evidence shows that imagery evokes emotional responses which are stronger than those evoked by verbal processing (Ji *et al.,* 2016). In this way, it is possible to create an immense flow of motivational energy through hope.

Alongside hope comes an increase in belief; when we visualise ourselves in an alternative reality, accomplishing something that is feasibly possible, our belief that this outcome can occur will increase (Holmes & Matthews, 2010). In other words, there is an increase in our self-efficacy. Through repetition of the vision, the more our belief in the plausibility of this self will increase, and we create neural pathways that strengthen this positive expectancy. Hope and self-efficacy therefore have a reciprocal relationship: as Boyatzis and Akrivou explain, a person with lower self-efficacy "becomes defensive, loses "hope," and withdraws energy or commitment to the effort of change" (2006, p. 632). Therefore, self-efficacy is important to sustain motivation in the longer run, because it determines expectancy of success, and correspondingly how hard one will work towards the action (Bandura, 1977). In fact, academic self-efficacy has been found to play a significant role in education: in a meta-analysis of 109 studies, Robbins *et al.* (2004) found that academic self-efficacy was the strongest predictor of cumulative GPA and the second strongest predictor of academic retention. Higher self-efficacy has also been linked with self-regulated learning strategies and critical thinking skills (Elliot and McGregor 2001; Greene *et al*. 2004).

5.5 L2MSS in Practice

Whilst much theorising on the L2MSS has occurred, its practical implementation has also been considered, and Dörnyei and Kubaniyova (2014) designed a pioneering 'Vision Intervention Programme' for use by L2 educators (Table 1). This intervention is broken down into six stages, and further details can be seen below:

Stage	***Necessary Conditions***
1.Creating the language learner's vision	*The learner has a desired future self-image (vision) which is related to but is also different from his/her current self-concept.*
2. Strengthening the vision through imagery enhancement	*The vision is elaborate and vivid.*

3. Substantiating the vision by making it plausible	*The vision is perceived as plausible but not comfortably certain, and it does not clash with other parts of the individual's self-concept, particularly with the expectations of the learner's family and peers.*
4. Transforming the vision into action	*The vision is accompanied by relevant and effective procedural strategies that act as a roadmap towards the goal*
5. Keeping the vision alive	*The vision is regularly activated in the learner's working self-concept.*
6. Counterbalancing the vision by considering failure	*The learner is also aware of elaborate information about the negative consequences of not achieving the desired end state.*

Table 1*: Adapted from 'Framework for a motivational vision programme' (Dörnyei & Kubaniyova, 2014, p. 46)*

The Vision Intervention Programme combines theory with practice, because not only does it divide the intervention into stages, it also outlines the necessary conditions that must be in place for each stage to be successful. These conditions form an "integral part" (Dörnyei, 2014, p. 11) of the L2MSS, and their incorporation demonstrates that desired future selves do not by themselves motivate automatically. If that were the case then any learner with an Ideal L2 Self would actively work towards it, but this is not normally the case. Instead, the meeting of the necessary conditions for each stage of the Vision Intervention is a prerequisite for its motivational capacity. Therefore, as Dörnyei emphasises, "the essence of any motivational practice in this vein is to create or enhance these conditions" (2014, p. 16). These conditions, proposed by Dörnyei and Ushioda (2011) are:

(1) the L2 learner should have a *desired* future self-image,
(2) the future self should be sufficiently *different* from the current self,
(3) a *vivid and elaborate* future self-image should be available,
(4) the future self-guides should be *plausible*,
(5) the future self image is *not perceived as comfortably certain*,
(6) there is *harmony* between the ideal and ought selves,

(7) the future self-guides are *activated*,
(8) *procedural strategies* are in place and
(9) the desired self is *offset by the feared self.*

We can see that all these conditions are important as they relate to the successful generation, maintenance and activation of the vision during the journey towards the Ideal L2 Self. Research on the L2MSS has, in particular, highlighted the importance of the third condition which specifies that the vision should be elaborate and vivid. This was first evidenced by Al-Shehri's study (2009) which found positive correlations between learners who had a visual learning style and a stronger L2 Ideal Self than those students with a less visual style. Supporting this further was research by Kim (2009), and Dörnyei and Chan (2013) which highlighted the role of the multisensory nature of visions in creating a more vivid Ideal L2 Self. You and Chan (2015) also found that the future-self guide was stronger if the vision was more vivid and elaborate. Furthermore, they linked an increase in clarity and elaborateness with an increase in frequency of visualising, also showing the importance of regularly activating the vision.

Research has also brought to light the necessity of the fourth condition which relates to the plausibility of the vision. Quite simply, if the vision is not realistic it will not have the power to motivate. In Chan's (2015) case study with a language learner, the motivational power of his vision was only realised when he started revising his vision 'downwards' in order to make it more realistic and attainable. For example, when the student found that his vision of publishing several articles was not materialising in reality, due to factors outside of his control, he amended his vision accordingly.

Similarly, Henry (2015) emphasises that possible selves must be plausible to remain effective. He notes that self-guides are naturally adjusted when they feel too distant or unattainable, suggesting that learners have an innate ability to revise and refine their visions based on situational factors. This aligns with Pham and Taylor's (1999) research on mental simulations, which found that such simulations are powerful motivators precisely because people tend to visualise what is achievable rather than purely idealized or unrealistic scenarios. This understanding of plausibility as an inherent characteristic of vision formation will be considered in the analysis in this thesis. In examining participants' envisioned L2

selves, it is possible that the extent to which their visualisations are naturally self-regulated and adjusted for realism may emerge.

Focussing explicitly on the conditions for the motivational capacity of the L2MSS, Hessel (2015) argued that they remain hypothetical in their proposal, insofar as research has not validated them empirically. With this in mind, she designed and tested a questionnaire using an 11-point scale to measure these conditions, including the "perceived *desirability*, *accessibility* and *plausibility* of this future L2 self, the perceived present-future *self-discrepancy* and the amount of *effort expended towards its attainment"* (Hessel, 2015, p. 106). Hessel's study with 97 German university students found that the highest motivation towards the Ideal L2 Self was correlated with how frequently the Ideal L2 Self was envisioned. This would relate to the seventh condition of activating the vision and the 'Keeping the Vision Alive' stage of the Vision Intervention Programme. Interestingly, the condition relating to the plausibility of the vision was not found to be statistically significant, although it was related to some expending of effort. However, the results on present-future self-discrepancy showed that a moderate rather than large gap between the current and ideal self was more likely to facilitate motivation, lending support to the plausibility condition, whereby a future self that is less discrepant is perceived as more plausible.

5.6 Studies on L2MSS

For almost two decades, the L2MSS has been the dominant theoretical framework in L2 motivation research, and this is evidenced by the considerable scholarly interest in this paradigm (see Boo *et al.*, 2015 and Mahmoodi & Yousefi, 2022 for reviews). A recent survey analysing 313 L2MSS publications from 2005 to 2021 reveals a consistent annual growth rate of 48% in the number of publications within this field (Liu, 2024). As Liu (2024) concludes, "this is still a rapidly expanding research field" (p. 5), attributing its appeal to its simplicity and adaptability. The widespread adoption of the L2MSS is evident across diverse global contexts, with significant research conducted primarily in China, followed by Iran, South Korea, the US, and Japan.

While quantitative research has traditionally dominated the field, there is now a growing interest in qualitative and mixed methods studies within the L2MSS framework (ibid). Much of the L2MSS research has sought to verify the motivating power of future

self-guides, and several studies have identified the Ideal L2 Self (Dörnyei, 2005) as a driving force in L2 motivation (e.g. Csizér and Kormos, 2009; Ryan, 2009; Taguchi *et al*., 2009, Fukada *et al*, 2011; Papi, 2010; Moskovsky *et al.,* 2016). As Csizér (2019) explains, the focus of these studies, most of which used questionnaires, was to identify the influence of the ideal L2 self on a criterion measure (or measures), which were most often related to self-reported motivated behaviour or intended effort. These studies generally confirmed the associations between the ideal L2 self, attitude toward L2 learning and motivated behaviour. In other words, research has shown that vision practices have a positive impact on learners' attitudes and beliefs about language learning.

A few studies have taken a different approach, and experimented with vision-based practices. An early example is research by Magid and Chan (2012), who in a large-scale intervention in England and Hong Kong over a period of 3 to 4 months, used imagery alongside other ideal-self generating activities. The researchers found that these visualisation exercises led to the strengthening of the Ideal L2 Self, and in addition, highlighted three conditions that they found enhanced the effect of the visualisation; the belief of the learners in the visualisation activity; their ability to concentrate (dependent on their mood and tiredness), and their ability to visualise.

Other notable motivational interventions on vision have since been conducted by researchers such as Sampson (2012), Mackay (2014), and Safdari (2021), among others. Vlaeva and Dörnyei's review (2021) provides a comprehensive overview of these efforts, detailing 13 published vision interventions. With durations ranging from several weeks to a full academic year, these studies employed various techniques, including activities like visualisation, goal-setting, and reflecting on future selves. Collectively, these interventions demonstrate that L2 vision strategies can positively impact learners' vision, motivation, confidence, attitudes, and self-reported effort in learning English (ibid).

Interestingly, however, a different result emerged from Vlaeva and Dörnyei's (2021) own vision-building intervention, conducted with 25 EAP learners over the course of 5 weeks. They observed fluctuating levels of engagement and acknowledged that their "findings did not conform to the success story of some past vision interventions" (p. 14). While they do not doubt the inherent power of vision, they question the design of vision interventions and their effectiveness in maintaining learner engagement.

Despite the growing body of research on vision-based motivational interventions, there remains a significant gap in studies that explore the direct effects of vision interventions on L2 learning success over time. While many studies highlight the potential of visualisation to enhance learners' motivation and self-reported attitudes, few have examined how these interventions lead to measurable improvements in language proficiency or sustained learning outcomes. This gap is likely due to challenges in linking psychological constructs such as motivation and vision directly to objective measures of L2 achievement. Furthermore, most existing research tends to focus on short-term effects rather than long-term impact, which leaves a critical aspect of vision intervention underexplored.

Within this landscape, some studies have also shed light on the dynamics of imagery use in practice with language learners (Chan and Dörnyei, 2013; Chan, 2014 and 2015; You and Chan, 2015). We have already referred to the study by Al-Shehri (2009), which highlighted the link between a visual imagination style and a stronger Ideal L2 Self amongst Saudi learners, and also to the studies by Dörnyei and Chan (2013) and Kim (2009), which also pointed to the role of the auditory, as well as visual sense in creating elaborate visions. Safdari's study in Iran (2019) supported the latter, finding that both visual and auditory sensory styles are involved in forming imagery and vision.

You and Chan (2015) also found that imagery changed in its nature and content, for example by shifting from the ought-to self to the ideal self or vice versa, depending on the situation. Henry (2015) reminds us that Possible Selves are neither fixed nor static entities, and that they were never conceptualised as such by Markus and Nurius (1986), who "emphasised the *dynamic* nature and *multi-faceted* qualities of possible selves" (Henry, 2015, p. 93). He further points out that the tendency to view Ideal Selves as fixed targets has arisen due to studies that have assessed the gap between the participant's current self and ideal self; however, this does not account for a 'shifting of the goalposts' and therefore fluctuations in the gap itself, because these selves may, and will, most probably change due to a number of factors, both internal and external to the learner. He therefore proposes a 'Tentative Model of Possible Self Dynamics' (Henry, 2015, p. 92), which highlights three important dynamics at play within the domain of Possible Selves: "changes triggered by interaction with other self-concepts; changes in the vividness and elaborateness of the image at the heart of L2 selves and in the availability and accessibility of the Ideal L2 Self, and up and downward revisions of the Ideal Self".

As outlined in Henry's (2015) model above, the power of ideal selves is partly dependent on their availability and accessibility, i.e. "the ease with which they can be imagined and the ease with which they can be brought into awareness" (Henry, 2015, p. 87) in order to generate self-regulated behaviour. It follows then that language learners' imaging skills are key. In 2012, Magid and Chan concluded that L2 learners' ability to visualise was crucial for enhanced imagery use, and "they may need their teachers to help them develop this skill" (2012, p. 122) as it would impact not only on the elaborateness of their vision but also on the extent of their emotional involvement:

> The L2 learners' ability to visualise will affect how vivid and elaborate their vision of their Ideal L2 Selves will become as well as the intensity of the emotions that will be aroused during the visualisation process. Whether or not students have the ability to visualise situations is an important issue because it is a pre-requisite for students to participate fully in the visualisation activities in our programmes. If L2 learners lack the ability to use their imagination to visualise situations, they may need their teachers to help them develop this skill.
> (2012, p. 122)

5.7 Summary

The propelling force behind the Ideal L2 Self is vision, which has been described as "one of the highest-order motivational forces, one that is particularly fitting to explain the long-term, and often life-long, process of mastering a second language" (Dörnyei and Kubanyiova, 2014, p. 9). Vision inspires action, and when the motivation to learn a language is tied to the creation of a desirable future self, it follows that motivation and resulting effort should be enhanced. However, in order to inspire action, the vision needs to be powerful and contain compelling future possible selves that have the power to spur people into action. As Dörnyei and Chan summarise, "learners with a vivid and detailed ideal self-image that has a substantial L2 component are more likely to be motivated to take action in pursuing language studies than their peers who have not articulated a desired future goal-state for themselves" (2013, p. 440). If a learner can vividly and realistically 'see' their ideal self successfully using the L2, then the chances of persisting on the learning journey, despite the encountering of obstacles, are higher.

However, despite these findings, there is a significant gap in the literature regarding how imagery skills themselves can be developed and integrated into L2 learning practices. While much attention has been given to the motivational potential of visualising the Ideal L2 Self, little research has focused on the specific techniques or interventions that can help learners to develop their imagery abilities. There is a notable absence of studies that examine how teachers can actively foster and improve students' visualisation skills as part of a broader vision-building or motivational intervention. Without a clear understanding of how to build imagery skills, L2 learners may not activate the full potential of vision-based motivational practices.

This summary of vision now brings us to the end of the literature review. The next chapter will present the first study from this thesis, which is an exploratory investigation into the visions of EAP language learners.

Chapter 6 Investigating the Vision: A Content Analysis of the Ideal L2 Self of EAP Students

6.1 Introduction

The Ideal L2 Self is one of the key components of the L2 Motivational Self System. It is conceptualised as "the L2-specific facet of one's ideal self" (Dörnyei, 2009, p. 29), represented as an image or a vision of the learner's desired future self. In other words, it consists of the hopes and aspirations that a language learner has for their future self in the language domain (Hadfield & Dörnyei, 2013). While there has been considerable research on the Ideal L2 Self, this research has generally focused on its motivational strength, through the implementation of ideal self motivational programmes in the form of intervention studies. Some studies have provided a glimpse into the content of learners' visions, by identifying the types of visionary goals that learners have (for example, Sampson (2012), Chan (2014), Adolphs *et al*., (2018), Mackay (2014). However, to date, no study has conducted a content analysis of language learners' visions in order to consider what learners actually imagine when they envisage an idealised L2 future. What does the vision consist of? How is it composed and expressed? What is the scope and extent of the vision?

The aim of this study is exploratory, with the view to generating a more detailed understanding of the vision of the ideal L2 self and the nature and scope of learners' visionary goals. The more we know about learners' ideal selves, the better placed we will be to implement visionary motivational techniques in a more informed manner. In exploring learners' L2 visions in depth, it is also possible that insights will be gained into the motivational forces at play behind the ideal L2 self; as we learn what is within the L2 vision, we may be able to understand how this can motivate the learner to increase his or her effort.

6.2 Methodology

6.2.1 Research Design

In order to explore learners' visions, it is necessary to have access to detailed descriptions of the ideal self. The ideal self is part of the self-concept, which includes our beliefs about ourselves and our attributes, and who we think we are (Baumeister, 1999). A key feature of future self representations, and in this case the ideal self, is that they transpire as a "compelling vision or conception of the self in a future state" (Wurf & Markus, 1991, p. 99). In this sense, they are an experience, and any research instrument needs to capture how they

are conceived in their experiential form. Therefore, to facilitate a design that could access the experiential aspect, as well as the intricacies of the self-concept, a qualitative methodology was employed. This is in keeping with Ushioda's suggestion that "qualitative methods may be especially useful when the empirical focus is on how language learners conceptualise themselves in the future", and in particular for exploring "the nature of an individual's future self representations and their impact on motivation" (2020, p. 200).

Another methodological factor to consider is that future self representations are an experience that occur within the imagination of participants, and as the imagination is not visible, "the only access we have to people's meaning-making is through externalization, that is, the part of these semiotic dynamics made perceptible to others" (Zittoun & Gillespie, 2018, p. 12). Therefore, research instruments need to be sufficiently elicitative in order to encourage learners to externalise the details of their experience.

Further, as the focus of the data is the Ideal L2 Self, a prerequisite is that learners are able to generate and articulate an L2 vision. However, this ability can not be taken for granted; as Hadfield and Dörnyei assert, "it is highly unlikely that any motivational intervention will lead a student to generate an ideal self out of nothing" (2013, p. 5). This was in fact confirmed by Mackay's (2019) finding that students who had not undergone a visualisation intervention were less able to formulate a vision, and indeed to understand the concept of vision- as compared to those who had received some instruction about visualising their ideal selves. The accessibility of a possible self depends on its availability within the working self at that point in time (Markus & Nurius 1986), and with this in mind, the study adopts a guided approach in order to gradually raise awareness of the ideal L2 self within learners' working self-concept.

This guided approach consisted of four stages within a one-hour vision training workshop, as summarised in Table 2, with full details in Section 6.2.3. Led by the researcher, the workshop began with an introduction to multisensory visualisation and ideal selves through a brief practice visualisation exercise. Participants then brainstormed their L2 goals using a goals tree to prepare for visualising their Ideal L2 selves. Next, they engaged in guided imagery to achieve a relaxed state. Finally, they visualised their ideal L2 self and documented their experience by writing an open-ended description of their visualisation on a designated sheet (see Figure 11).

Stage in the workshop	Activity	Objective
1.Introduction to the general ideal self and visualisation training (10 minutes)	Visualisation practice-car and lemon exercise led by researcher *(see Figure 8)*	To familiarise participants with multisensory visualisation
2.Preparation for visualising ideal L2 self (15 minutes)	Brainstorm L2 goals individually using goals tree *(in Appendix B)* Guided imagery script for relaxation read out by researcher *(Figure 9)*	To raise awareness of L2 goals in working self-concept To be in a relaxed and mindful state
3.Generating vision of the ideal L2 self (15 minutes)	Guided imagery script for ideal L2 self read out by researcher*(Figure 10)*. Quiet time for further individual visualisation	To enable participants to construct and imagine their ideal L2 self For participants to continue to develop their imagery as far as possible
Articulating the L2 vision (20 minutes)	Open ended writing of vision experience on worksheet *(Figure 11)*	To capture the details of the vision in writing

Table 2 *Summary of Workshop Procedure: Study 1*

In this way, the methodology aligns with theoretical perspectives on mental representation, as discussed in Chapter 2, which view imagery as a combination of propositional and depictive codes or a 'quasi-pictorial' format. The workshop structure ensures that participants engage both verbal and imagery cognitive systems, reinforcing the principles of Dual Coding Theory (Paivio, 1971). By first constructing mental images and then articulating them in writing, participants integrate these two representational systems, which enhances cognitive processing and memory and facilitates a richer conceptualisation of the Ideal L2 Self.

6.2.2 Participants and Setting

This research was conducted at a university in the UK with students of English for Academic Purposes (EAP) on a pre-sessional programme. As a teacher at a UK university, I was

fortunate to have access to pre-sessional students, and invited learners from my classes to take part in the research. Their participation had no impact on their credits or grades, and this was clarified at the outset. They were informed of the topic, and that this was part of my PhD research. A total of 25 students, ranging from age 22 to 25, volunteered to take part (see Table 3). These were international postgraduate students who had arrived in the UK within the last month, and had chosen to voluntarily enrol on a month-long pre-sessional course before commencing their Masters degrees in the field of Business Management. All students in the group were from South-East Asia. As relatively mature learners having studied English for some time, it was anticipated that they would find it easier to create a vision, and have a sufficient level of English to enable them to express this vision (their IELTS scores ranged from 5.5 to 6.5).

Nationality	**L1**	**Number**	**Male**	**Female**	**Intended Courses (Postgraduate)**
Chinese	Mandarin	19	9	10	Marketing; Economics; HR, Accounting; Money, Banking & Finance
Taiwanese	Mandarin	3	-	3	Marketing; Accounting
Japanese	Japanese	3	1	2	MBA; Money, Banking & Finance

Table 3 Overview of Study 2 participants by gender, nationality and intended course (total=25)

6.2.3 The Vision Training Workshop

The workshop was carried out in a single session of not more than one hour; participants had willingly volunteered their time, and it was important that the workshop should not take up too much of their time. As Burns and Edwards (2010) point out, action research should not interfere with teaching and therefore, the research was conducted outside of the usual classroom setting. In order to create an atmosphere that differed from the usual classroom experience, and one that was more personal, the workshop was carried out in small groups of five students. Taking into account the importance of being 'sufficiently fresh' when visualising (Magid & Chan, 2012), the research was conducted during the morning hours, and on a day when learners did not have their Academic English class.

Prior to the workshop, students were provided with details of the study and asked to sign ethical consent forms (Appendix B). They were assured of confidentiality and anonymity, that the data would only be used for academic research purposes, and also that they could choose to withdraw from the research at any point. Ethical approval had been sought and achieved from the School of English at the University of Nottingham (Appendix A).

6.2.3.1 Introduction to the general ideal self and visualisation training

The workshop began with an introduction to the concepts of vision and the ideal self in general. Learners were asked to think back to when they were children and recall what they had wanted to be 'when they grew up'. In keeping with the conditions required for effective ideal-self visualisation (Magid & Chan, 2012), learners were also introduced to visualisation, as a tool for creating their vision. This was an essential part of the workshop, as the ideal self should be experienced as a real and tangible state through mental imagery, and all participants needed to be confident in visualising.

For this purpose, learners were led through a brief training exercise in order to practise visualisation (see Figure 8). This consisted firstly of participants visualising a car, and sharing aloud the colour and details of the car that they had imagined, and secondly, a more elaborate and multisensory visualisation of a lemon. The lemon visualisation exercise is often used by researchers to familiarise participants with multisensory visualisation, and in my own experience, I have found that it evokes vivid sensory representations amongst students, in particular taste and smell. After this exercise, learners were again given the chance to share aloud what they had visualised and ask any questions pertaining to visualisation. The point that visualisation ability varies amongst individuals was highlighted and stressed. Participants were reassured that if they found it difficult to create a vision this was nothing to worry about, and to share their experience honestly.

We all have an idea of what we want to be in the future. When children are asked 'what do you want to be when you grow up?', they might respond with pilot or doctor or ninja or superhero! Take a minute to think back and remember what you wanted to be.
As adults, we also have an idea of what we want to become in the future. Today we will be talking about your ideal self. An ideal self is essentially an ideal future version of "you"; it is the person you want to become tomorrow, next week, next month or next year. It is the best possible version of yourself that you can be.
A technique that we use to imagine the ideal self is called visualisation. Visualisation is a great technique, because you can imagine something so vividly that it almost feels real. Neuroscience research has shown

that sometimes the brain cannot tell the difference between imagining something and doing something. We can use visualisation to imagine our future in a very real way, and in this way motivate ourselves to want to achieve it. Many successful sportspeople and athletes use visualisation regularly to mentally practise their game plan (give a couple of famous examples: Novak Djokovic, Wayne Rooney, Michael Phelps).
For visualisation to be useful, it needs to be vivid, i.e. it needs to be clear and it needs to feel real. For this, you don't just 'see', you might also use your other senses such as touch, taste, smell, as well as experience feelings and thoughts. So when you are visualising, try to use as many senses as you can.
(Do a brief visualisation exercise with them – e.g. 'close your eyes for 5 seconds and imagine a car. what colour was the car, what make was it?' AND/OR 'close your eyes and picture a lemon. Imagine holding the lemon and cutting it. Imagine the smell of the lemon. Now imagine the juice being squeezed into your mouth – what does it taste like?')
Some people find it very easy to visualise, and some find it more difficult. Everybody is different in this ability. Don't worry if you find it difficult to visualise anything at all. Just relax and let your imagination lead the way!

Figure 8 *Sample script of the introduction to the workshop*

6.2.3.2 Preparation for visualising the Ideal L2 Self

In preparation for visualising the Ideal L2 Self, participants were first asked to think about their L2 goals for the future and brainstorm these individually using a language goals tree (Appendix B). The objective behind this was to raise awareness of language goals and desires in the working self-concept, and increase the availability of these for the Ideal L2 Self.

Subsequently, a guided imagery exercise for relaxation was carried out. This involved a script using breathing exercises and physical relaxation techniques (Figure 9). Thus far, the workshop had involved discussing the ideal self and visualisation together as a group. It was now important that participants were able to turn their focus inwards in order to reach the state of mindfulness that would enable them to visualise.

Close your eyes…. sit up straight and find a comfortable position….breathe deeply….take a few deep breaths in…..and out. Place your hand on your stomach and feel it inflate as you breathe in…feel the tension leave your body as you breathe out.
Direct your thoughts to what is happening here and now in the room around you….be aware of the sounds in the room around you…..now be aware of how you are sitting…..begin to relax. Start by lifting and dropping your shoulders….rotate your neck….let the tension leave your body. Now relax your arms….your hands…..your legs….your feet…..your toes…..your whole body feels relaxed. Now concentrate on your breathing….take deep breaths in and out….

Figure 9 *Guided imagery for relaxation (Adapted from Hadfield &* Dörnyei*, 2013, p. 20)*

6.2.3.3 Generating a vision of the Ideal L2 Self

Once learners had completed the relaxation exercise, they were informed that they would now generate a vision of their Ideal L2 Self. A guided imagery script (see Figure 10) was read out by the researcher, rather than asking participants to read the script themselves, as this would allow them to close their eyes and create and experience their vision while the researcher spoke. This script was based on Hadfield and Dörnyei's script for creating the Ideal L2 Self (2013, p. 26), but was adapted so that it did not incorporate the prompts relating to using the L2 in any specific settings such as work, study, social life and travels. As this study was exploratory, it was important that the settings in the vision should emerge directly from the learners themselves.

It was also important that participants experienced their ideal self as here and now, as if already accomplished, and written prompts may not have been able to elicit this. Sampson (2012) found this to be the case during an ideal self activity with written prompts, whereby visions were described as future intentions rather than already accomplished goals. Therefore, verbal prompts were included to encourage present tense imagery, such as: 'where are you at this point in time; how is English important to you; in what ways are you using English'?

Now we are going to focus on your ideal English speaking self. Your Ideal Self is your vision of the person that you really want to become. It is the person that you can become. Your Ideal Self is the best version of you.
Imagine yourself in the future. It is 10 years from now. You have worked very hard at learning English….. and you have succeeded in accomplishing all of your language goals…..you are a successful English language user.
Where are you at this point in time? How old are you? What are you doing in your life?
How is English important to you? When do you use it? Imagine the different ways in which you are using English in your life...
Focus on any emotions…….how do you feel?
You can continue visualising this for a few minutes….remember to make it as real as you can.

Figure 10 *Guided imagery script for ideal L2 self visualisation Adapted from Hadfield & Dörnyei (2013, p. 26)*

Subsequently, a few minutes of quiet time were provided for learners to continue with their visualisations, without any researcher input. When conducting visualisation in the classroom, I have always found that playing relaxing music changes the atmosphere and

signals students to switch off from the external environment. Therefore, the lights were dimmed and some soft music played in the background.

6.2.3.4 Articulating the L2 vision

After the visualisation exercise was complete, and participants had gradually returned their attention to the classroom, they were provided with a worksheet to record what they had visualised (Figure 11). This took place immediately after the guided imagery to ensure that recall would not be compromised. In order to avoid pre-imposing any structure, and so that learners could express their vision freely in their own style, the worksheet did not include any themed prompts. The only prompts provided were at the beginning ('I am...' and 'The year is…'), as a reminder to situate the vision in the here and now and in the present tense.

This stage was an important part of data collection, and it was hoped the feedback gathered would provide detailed and intricate information about the visions. A written format was used in order to enable learners to conceptualise and express their ideal self in its raw form and in their own words. Semi-structured interviews could have been used to elicit information from the group, but came alongside the danger of inadvertently leading the researcher to 'co-construct' ideas with the interviewee (Ushioda, 2019), as well as some participants not sharing as much as others. A written methodology would enable participants to describe their visions in their own style and at their own pace (Crow & Andrews, 2019), and it was also considered that the writing task would prove to be a useful exercise in itself by encouraging self-reflection and further self-awareness during the writing process.

Now write about what you visualised. Remember: include as much detail as you can, and take your time. Don't worry about spelling and grammar!

My ideal English speaking self

The year is…

I am……..

Figure 11 *Prompt for Writing about the L2 vision*

6.2.3.5 Closing the session

At the end of the session all paperwork was collected and students were thanked for their time. They were also told that they could continue visualising at home if they wished, and that they would be provided with a copy of their vision for this purpose.

6.3 Data Analysis and Initial Findings

Upon completing the data collection phase, a detailed content analysis of learners' L2 visions was conducted using the written descriptions provided by all 25 students on the designated worksheet (Figure 11). This began with the dataset being read several times, first, for the purpose of familiarisation, and then to identify any regularities and themes. This search was exploratory and guided by the data rather than by the researcher, in order to facilitate the emergence of salient elements and conceptual frameworks directly from the data (Saldana, 2016).

6.3.1 Classification of imagined scenarios by L2 function

In the first stage of analysis, it became apparent that there were some common situations and scenarios that learners had imagined themselves in; similar to Adolphs *et al.'s* (2018) finding that "while some goals are particular to an individual (e.g. communicating at the gym as a part of their daily life tasks), many goals emerged that were common to these English language learners" (p. 16). In their study, Adolphs *et al.* (2018) classified learners' visionary ambitions into two broad categories: academic/career and social/leisure, while Mackay (2019) took a different approach in her study by labelling learners' visionary goals as either personal or pragmatic. However, in order to avoid imposing assumptions from other studies, predefined classifications were not used. This was an exploratory analysis and it was important that themes and categories should emerge from the raw data.

The analysis began by identifying each statement in which participants imagined themselves using English for a particular goal or in a specific situation. For example, 'I am the owner of a restaurant'; 'I can travel around the world'; 'I am chatting with foreign clients in English'. These, and all other such responses were labelled with codes, and organised into initial categories according to common themes, alongside their frequencies *(f)* i.e. the total number of times that they were mentioned (see Table 4).

Function (Using English to…)	Example Visionary Goals
1.To work in a company (*f*=21)	Successful businesswoman in a big company/ project manager/ team leader/ chatting with foreign clients/ negotiating in a meeting/ delivering a presentation
2.To teach English as a profession (*f*=3)	Teaching English at a university/teaching English in a school
3.For any other occupational purpose *(f*=7)	Owner of a restaurant/ running a café/politician/ computer scientist/going on a TV chat show
4.To travel for leisure (*f*=21)	Travelling around the world/ exploring new cultures/using English on holiday
5.To travel for business (*f*=7)	Attend international conferences/attend meetings abroad
6.To network with colleagues abroad (*f*=5)	Chatting with colleagues/speaking on the phone
7.With family/children in everyday life (*f*=18)	Talk to my children in English/assist children to learn English/ find an English speaking boyfriend

Table 4 *Initial Classification of L2 goals by function*

Upon further observation, it appeared that the functions of categories 1, 2, 3, 5 and 6 were all fundamentally connected to participants' careers, and so these were clustered into one group under the label of 'career goals'. This resulted in a final classification of the L2 visionary goals into three broad functions or domains, and their total frequencies *(f)* as:

Domain	Example Visionary Goals	*f*
Career	Using English to work in a company, to teach English language, to travel for business and to network with English speaking colleagues	43
Travel	Using English on holiday and to explore new cultures	21
Family	Speaking English with one's own family and teaching English to own children	18

Table 5 *Final Classification of L2 goals by function*

Notably, only one vision had mentioned a goal derived from a purely social element, and so this was not included as a separate category. It is possible that sociocultural goals may have been subsumed within the travel category, as some learners referenced using English to communicate during their travels. It appeared that when meeting people, this was more for functional purposes, rather than the desire to socialise per se. For example, one of the participants wrote, 'I use English to talk with travellers and talk with people when I am travelling around Europe'. For this reason, the broader category was defined as travel-related.

6.3.2 Identification of non-L2 features

In addition to the aforementioned domains, learners' visions referenced other themes that did not directly relate to the L2. We may use one of the participants' visions as an example, in which non-L2 features are highlighted in italics:

> I am a professional pilot in an international airline company. I use English to talk with travellers and talk with people when I am travelling around Europe. *I still go to the gym and am much stronger than in 2018. I have a private gym which only serves my friends and family. I never lose any of my family members again and all my family live in a peaceful atmosphere. I am feeling great and have a large amount of time to spend with family members.* I use my time to practice and enhance my English level which can help me in international flight and earning money. *I earn money and spend it on my family and hobbies and my parents are pleased. They do not push me to be in a relationship.* That's a happy and great life in my imagination.
> (Extract from Ben's vision)

Ben was instructed to visualise himself in 10 years' time as a successful English language user, which he has done. The L2 has enabled him to achieve his professional goal of becoming a pilot, and travel goal of visiting Europe. But several elements of his vision (italicised) are set outside of these domains; such as being physically strong, having a private gym for his friends and family; being part of a close-knit family. These do not appear to relate to the use of the second language. Analysis of other visions led to the same finding: that learners had mentioned several elements that were not linked to the L2.

This prompted the data analysis to reconsider the visions; this time from a more holistic lens. The descriptions were reread several times, but rather than simply categorising and classifying non-L2 goals by setting, the analysis was driven by the need to consider *why* learners might have included these seemingly non-L2 related domains into their L2 visions. This is discussed in detail in 6.4.2.

6.4. Results and Findings: Features of the L2 vision

This section will outline and analyse the findings of the study, starting with the key themes and features identified within learners' visions. It will subsequently address the study's limitations and conclude with a summary of findings.

6.4.1 The Pragmatic Element

Learners' visions revealed their expectations of using English extensively in their daily lives a decade from now. Learners were driven by the utility and pragmatic affordances that English can provide in their future lives; enabling them to progress in their careers, to travel freely as global citizens, and to equip their children with English language skills. The following excerpt from Serena's vision exemplifies all three of these perspectives. The importance that Serena places on the utilitarian benefits of English to her future self is evident in her choice of phrases, such as 'tool to expand my horizon' and 'most important language':

> In 10 years time I am still using English as the (second?) most important language in my life! It will be a tool to expand my horizon, to communicate with people from all over the world, who have different social, cultural, ethnic backgrounds. But because my English is almost fluent, I can communicate with them on quite a high level!
> I use English when I am travelling, for work or privately. I use English as the language I will be teaching in. In 10 years I will have an expanded vocabulary of English on different expert fields (historical, philosophical, and mathematical). In 10 years time I will talk to my children in English and assist them in their learning process as well as I can!
> (Extract from Serena's vision)

On the whole, the largest component of the L2 related elements in learners' visions was associated with the professional domain (43 references - see Tables 4 and 5). Participants created ambitious visions of themselves in their careers, with many envisioning themselves as senior managers and project leaders in global companies in common office situations: for example, negotiating in meetings, chatting with colleagues or delivering presentations. Whilst the majority of professional visions fell into this group, a few learners had also visualised themselves as English teachers or working in other fields such as business owners, politics and computer science. There was clearly a strong awareness of the pragmatic role that proficiency in English would play in facilitating learners' careers. This corresponds with Sampson's (2012) and Mackay's (2019) studies, in which occupational references in the vision were also most frequent. It is not surprising that learners focused heavily on this element, as the vision in this study was of themselves in ten years' time, at a point when they would be in their late twenties or early thirties. As Pearson explains, "many prospective and aspirational international students, particularly those from China...feel that early or mid‑career advantages necessitate academic qualifications in English" (2020, p. 426).

English was also perceived as a vital tool for travel and exploration, and travel was a common component of many visions (21 references altogether). While a few participants mentioned travelling for work purposes, the majority of these references were to travelling for leisure (see Table 4). Specifically, learners expressed their desire to use English on holiday, to see the world and explore different cultures, and one example of this is Mia's vision:

> An image that comes clearly to my mind - probably because I want it too much and I'll pursue it - is me being in a new city travelling and exploring new cultures, new ideas, using English to communicate. It is definitely a picture of me exploring different nations and discovering what differentiates and unites people.
> (Extract from Mia's vision)

The use of English with family was an element that also featured substantially in the L2 visions, and in fact was mentioned almost as many times as the travel component (18 times). Learners focused in particular on the passing of English skills to their own children. One participant wrote that she would 'teach English to my children since a young age so that

they understand it is important and make them discover English culture' whilst another shared that she would 'talk to my children in English and assist them in their learning process as well as I can'. By emphasising the desire to teach English to their own children, learners demonstrated the utilitarian value that they placed on the learning of the L2 in the long-term, not only for themselves, but also by equipping their children for their future.

6.4.2 The Personal Context

Section 6.3.2 highlighted that participants had referenced some personal goals that were not directly connected to the L2. Analysis showed that many of these references were connected to family and close relationships. We have already seen Ben's vision for the future, in which he visualises having a private gym for his friends and family, and living a peaceful and harmonious life with his family. Several other visions also focused on specific details of family life, that were not exclusively in the context of L2 use, and two examples are included here (references to family in italics):

> I am a businessman, I have my own business of international trade. I use my English in meetings with customers. *I have a nice wife and two kids, one boy and one girl.* I will teach my kids how to speak English. *I have free time, I am spending this with my family. We are on the beach, laughing and playing. It is a beautiful scene. I don't think rich can be happiness but when your family is healthy and happy, your life will be more meaningful.*
>
> (Extract from Rafael's vision)

> I am at the age of 30 when I am at the peak of my career life. Working in one of the top 50 firms as a top manager, I can instruct employees. Dressed in professional formal wear, I am chatting with foreign clients in English and making a deal with them. *Back at home in Shanghai, I spend quality time with my family. I have one daughter and one son. They are close to each other in age and very cute, like teddy bears, I love hugging and playing with them!* They are going to nursery and have already started to learn English and speak in two languages. This is what I want to be when I'm 30. Being a successful career woman and *lucky and responsible mother and wife is the goal I will reach at that time.*
>
> *(*Extract from Mandy's vision)

While both Mandy and Rafael begin by referring to their careers and their professional vision, they move on to a personal setting, and it is notable that a significant part of their vision focuses on their future families. Whilst some of this is in the context of their children learning English, there are some details that are not related to the L2; for example, Rafael visualising himself playing on the beach with his family, and Mandy focusing on physical aspects of her children and spending time playing with them. They also identify associated future self attributes, with Mandy describing herself as a 'lucky and responsible mother and wife', and Rafael highlighting health and happiness as a goal for himself and his family. In her vision, Mandy not only visualises at the peak of her career, but also herself as an ideal mother and wife. Rafael also includes a future self in an ideal family setting. It is notable that both are able to include these other selves seamlessly into their Ideal L2 Self narratives.

Many other visions also incorporated details that were related to home or family. It is not possible to include them in their entirety, but a few example statements can be seen here:

- Holding the hand of a lovely man, sitting in front of the TV, watching a soap opera
- I marry someone who I love
- I have a husband who is really love me
- My father and mother are living closely so I can take care of them
- At home I have a large dog and cute cat that are waiting for me
- In my home, I have some pets
- I play with my children every day and take them out to the park
- Living a happy life as a mother

(References to family: some excerpts from participants' visions)

One vision did emerge however as an exception to the typical family setting, in which the participant, Kim, created a more solitary vision:

I am 33 years old and a project manager of a consulting group. I have a stable economic status and enjoy wearing beautiful dresses every day. I am in a tall building

> in Beijing or USA, having a meeting with all the employees in English. I am wearing a Burberry windcoat, black dress, high heels, sunglasses and a black bag. It's noisy around me when I am giving my opinion in the meeting. I feel stressed but give my speech confidently. I can imagine that I have to go back home alone after my work to an empty room in my flat. I am sitting in a rocking chair. I am having a drink and looking outside at the world passing by, everyone looks so busy in their lives. I wonder if I will have time to have a family or if I will be able to meet the right person in my life.
>
> (Kim's vision)

Kim's vision is one of contrast. She constructs a vivid vision of a professional self, who is successful, glamorous and confident. Yet in her private life, she is more unsure of herself and where she is heading, perhaps signifying a clash between a time-consuming career and the opportunity to have a family. Nevertheless, her vision is similar to Mandy and Rafael's in that it consists of an occupational vision followed by details of a more intimate one. It appears that in constructing their L2 visions, learners have incorporated very personal settings. The question that arises then is *why* might learners perceive these other domains, particularly the familial one, as integral to their L2 selves? Perhaps the answer lies in Rafael's vision, when he states simply but profoundly:

> 'I don't think rich can be happiness but when your family is healthy and happy, *your life will be more meaningful*'
>
> (italics, my own emphasis).

If we think about meaning as a kind of "personal relevance and significance that give purpose to life" (Oxford, 2016, p. 18), then personal relationships are how many learners have created this meaning in their vision. Taking Ben's vision as an example, whilst he saw the utilitarian value of English in helping him to progress in his career and increase his earnings ('I use my time to practice and enhance my English level which can help me in international flight and earning money'), the underlying reason behind this was his family ('I earn money and spend it on my family'). His job enhanced his finances, and certainly this was important, but the actual meaning did not lie in the earnings itself.

Perhaps this is why Kim, despite having an ideal career, uses the words 'alone' ('go back home alone') and 'empty' ('empty room') in her vision, signifying a vision empty of meaning. She has constructed a vision of her ideal career self quite vividly: confident, well-dressed and financially comfortable. Yet in her private life Kim is alone, seemingly searching for her ideal family self when pondering whether 'I will have time to have a family or if I will be able to meet the right person in my life'. Gregerson (2020) explains that meaning is fundamental to the existence of the ideal self, arguing that if "there is no meaning or purpose to be found in an iteration of a possible self, then one would be hard pressed to idealize it" (p. 628). Being part of a family unit provides humans an innate sense of belonging and purpose. This is why for many participants, coming home, spending time with significant others, feeling loved, having pets, was such an important feature of their L2 vision.

6.4.3 The Altruistic Element

As we have seen, many visions referenced family and personal relationships. During data analysis it became evident that in several cases these references manifested in the form of kindness, particularly towards parents:

> 'And I have enough money to support my life and give additional to my parents'
> 'I'm able to give my parents a better living standard when they retire'
> 'I can take good care of my family'
> 'My father and mother are living closely so I could take care of them'
> 'I will buy my parents a 5 layered house'
> 'I see my parents every day to make sure they are okay'

In addition, it was noted that this goodwill and generosity was not limited to parents alone, but in fact extended more widely. We have seen that some learners envisaged themselves teaching English as a profession (Section 6.3.1), but there were also others teaching English in a voluntary capacity:

> 'I am a voluntary teacher in my hometown, teaching students difficult science concepts in simple English.'
> 'I will help students or anyone who has trouble in English'

‘Teaching the elderly to speak English’

‘Help those who don’t have as good language skills as me - be their voice’.

This desire to help and benefit others was present in many visions. Other learners visualised scenarios in which they were making a positive impact on society more generally. Though set in different contexts, and with different aims, their visions were united in their aim to help others, as can be seen by the use of the word ‘help’ in several excerpts (italics, my own emphasis):

> I am a computer scientist, I make robots. One day I make a really useful robot that *helps to protect the environment* and save the world from some issues. Then I get an invite to reveal my work to the world in one of the biggest TV shows. (Andy)

> I will have a boyfriend, and we *help homeless cats and dogs* together. I will buy a house to let these animals have a place to live in a pet home. People can also purchase homeless cats and dogs in my shop. (Anna)

> I am a politician, and I try to solve problems and bring some *help to my country*. I always speak English with my partners in politics and business. (Sam)

There appeared to be an ideal ethical self that was driving learners to help others; whether by protecting the environment, protecting animals, aiding one’s country, or indeed by supporting one’s parents. We can consider these compassionate motives in the light of altruism, which is defined as “a motivational state with the ultimate goal of increasing another’s welfare” (Batson, 2011, p. 5).

In order to be truly altruistic however, the action should be motivated only by the other’s well-being, rather than the potential of any reward. Based on these short vision narratives, it is not possible to say definitively whether all learners’ motives were altruistic, i.e. purely selfless. If we look at Andy’s vision for example, he sees himself inventing a robot to protect the environment but subsequently envisages revealing his work on a TV show. Was

he driven by the fact that his achievement would bring him fame, or purely by his social conscience? Returning to the previous examples of kindness towards parents, were these influenced by a sense of duty, given that many of these parents had likely spent large amounts of money on funding their children's international education? To truly investigate, more exploration of learners' motives would be needed. Nevertheless, it is pertinent to note that when referencing their desires to help others, none of the participants used 'ought', 'should', or any other language that might suggest such obligatory motivation.

One particularly well-developed vision, that was clearly rooted in a selfless desire to help others, sheds further light on the ideal altruistic self:

> I have overcome my shyness. I am in a worldwide assembly (maybe a UN held one). I am wearing a silk dress in traditional Chinese style, we call it Qipau. It's blue with embroidery on. I'll have my hair up. There are lots of scholars, academics, writers, people who care about our world, the current status of our society, people's living condition and future for our world. I am one of them, and I am able to communicate freely, talking about my opinion on issues of the day. I would have a voice in the congregation of scholars. People would agree with me, back me; or disagree with me and discuss with me. We will reach a solution to problems and contribute to the world. And perhaps make it better, function well. I will take advantage of my English skills in doing practical things and getting around with people. And I'll do things for the minority. Help those who don't have as well language skills as me. To be their voice.
>
> (Nadia's vision)

Nadia has created a vision of an empowering and meaningful professional future, containing elements of philanthropy and humanitarianism. She imagines her ideal self at an international conference, discussing and solving world problems. Nadia not only sees herself making a personal impact (e.g. 'I'll do things for the minority'), but also identifies herself within a collective identity, when she says 'I am one of them'. She goes on to refer to this collective altruistic self in the form of 'we', whereby she says 'we will reach a solution to problems and contribute to the world'. There is almost a sense of 'calling' in the way that she

expresses her goals; while the first part of her vision is formed in well-constructed sentences, towards the end she expresses her aims with more urgency, with the shorter sentences creating more impact:

> And I'll do things for the minority. Help those who don't have as well language skills as me. To be their voice.
> (Extract from Nadia's vision)

It is notable that Nadia mentions the idea of having a voice twice; the first time as 'I would have a voice' (amongst her colleagues), and the second time as 'to be their voice' (with reference to those with weaker language skills). Nadia clearly sees how English will help to facilitate her altruistic goals by giving her a voice, and in this sense, the L2 has become a contributor to her personal purpose. Upon reading her vision, it is difficult not to imagine Nadia as a successful language learner, as she has created a vision that is so tangible and deeply meaningful at the same time.

Taking another perspective, we can also consider these altruistic motives through the lens of values. Values are fundamental beliefs and principles that guide our behaviour. Values underlie identity to such an extent that they have been described as goals in themselves: "broad desirable goals that motivate people's action and serve as guiding principles in their lives" (Sagiv *et al.*, 2017, p. 4). Although hundreds of different values have been listed, Schwartz's (1992) classification of values is established in psychology and most commonly used. This circumplex (Figure 12) identifies ten groups of values that drive our behaviour: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security. Each type of value has a distinct motivational impact on action, and Schwartz (2012) views the circumplex as a motivational continuum: "the closer any two values in either direction around the circle, the more similar their underlying motivations; the more distant, the more antagonistic their motivations" (p. 10).

- Schwartz's (1994) model of the value structure



Power (PO): Social status and prestige, control or dominance over people and resources.
Achievement (AC): Personal success through demonstrating competence according to social standards.
Hedonism (HE): Pleasure and sensuous gratification for oneself.
Stimulation (ST): Excitement, novelty, and challenge in life.
Self-Direction (SD): Independent thought and action-choosing, creating, exploring.
Universalism (UN): Understanding, appreciation, tolerance, and protection for the welfare of all people and for nature.
Benevolence (BE): Preservation and enhancement of the welfare of people with whom one is in frequent personal contact.
Tradition (TR): Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide.
Conformity (CO): Restraints of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms.
Security (SE): Safety, harmony, and stability of society, of relationships, and of self.

Figure 12 *Schwartz's Values Circumplex (From Schwartz, 2012, p. 9-10)*

We can observe from Figure 12 that the altruistic motives expressed by learners in their L2 visions fall into the neighbouring categories of universalism and benevolence. Benevolence encapsulates the values relating to the consideration for one's family members, while universalism refers to the welfare of people and nature more generally. Both of these values are connected by the desire to do good for others, whether for family members or for wider society. It is perhaps not surprising to see benevolent values emerging in the visions of learners, for it is natural and instinctive to want to look after close family members, especially children and elderly parents. What is more unexpected is the extent to which universalism features as a prominent value within the visions, with many learners expressing the desire to make a positive impact in some way on society. This is, however, a finding that is consistent with other research; when averaged out across all members of a society, the values that emerge as topmost in terms of priority are benevolence, followed by universalism (Schwartz, 2012). People are driven more by self-transcendent values than egotistic and power-driven ones.

6.4.4 The Narrative Format

We have already seen (in 6.3.2) that when learners were instructed to imagine their future self as successful English language users, they did not do so in only the discrete settings in which they would use the L2. Rather, they constructed a vision combining these with their personal goals, formulating them into a logical story of the future self. The Ideal L2 Self is therefore

consistent with McAdams' theory of narrative identity, whereby people create identities through the construction of life narratives, which "synthesize episodic memories with envisioned goals, creating a coherent account of identity in time" (McAdams & McLean, 2013, p. 233). To consider one example of such a narrative, we may return to Ben's vision:

> I am a professional pilot in an international airline company. I use English to talk with travellers and talk with people when I am travelling around Europe. I still go to the gym and am much stronger than in 2018. I have a private gym which only serves my friends and family. I never lose any of my family members again and all my family live in a peaceful atmosphere. I am feeling great and have a large amount of time to spend with family members. I use my time to practice and enhance my English level which can help me in international flight and earning money. I earn money and spend it on my family and hobbies and my parents are pleased. They do not push me to be in a relationship. That's a happy and great life in my imagination.

Gergen & Gergen note that "perhaps the most essential ingredient of narrative accounting (or storytelling) is its capability to structure events in such a way that they demonstrate, first, a connectedness or coherence and second, a sense of movement or direction through time" (1986, p. 25). Both of these elements were present in learners' visions. We can see that Ben has connected several domains of his life together: professional, personal interests (gym, travel), family, and a potential romantic relationship. Although the recurrent repetition of 'I' may reduce the fluency effect, there is a sense of underlying organisation as he moves between domains. There is also a temporal pattern in the narrative, or a kind of movement, whereby he begins with the professional vision and then moves on to other elements such as personal interests and hobbies and then family. When highlighting the physical attribute of being strong, he compares his future self to his current self in 2018, which adds further coherence by relating the future to the present and demonstrating a sense of self-consistency over time. It is also interesting to note that the narrative is neatly summarised, through an emotional analysis of the ramifications of having reached his desired end state, giving a sense of finality to his story: 'That's a happy and great life in my imagination'.

We can also consider the narrative elements in Kim's vision, which differs from Ben's as it is set over the space of a single day and relates to only two settings: the office and her flat:

> I am 33 years old and a project manager of a consulting group. I have a stable economic status and enjoy wearing beautiful dresses every day. I am in a tall building in Beijing or USA, having a meeting with all the employees in English. I am wearing a Burberry windcoat, black dress, high heels, sunglasses and a black bag. It's noisy around me when I am giving my opinion in the meeting. I feel stressed but give my speech confidently. I can imagine that I have to go back home alone after my work to an empty room in my flat. I am sitting in a rocking chair. I am having a drink and looking outside at the world passing by, everyone looks so busy in their lives. I wonder if I will have time to have a family or if I will be able to meet the right person in my life. (Kim)

Kim is an accomplished story teller. Although her narrative presents a complex character with an element of conflict in her ideal self-concept, there is no loss of coherence. When she transitions between settings, she does so smoothly: 'I have to go back home alone after my work to an empty room…'. She invokes multiple senses by describing where she is, what she is doing, what she is wearing and how she is feeling. Reading her vision, it is almost possible to experience these settings and emotions for oneself, so vividly are they presented. As McAdams and McLean tell us, "through narrative identity, people convey to themselves and to others who they are now, how they came to be, and where they think their lives may be going in the future" (2013, p. 233). It is clear that Kim is contemplating what will be meaningful and truly important to her in the future through her narrative identity.

It is not possible to review all of the visions here in terms of their narrative structure, and we have already seen some other examples of the stories that learners constructed earlier in this chapter. Some were detailed and elaborate, for example Nadia's vision of her altruistic self at a UN assembly; while others were more brief, such as Rafael's vision of playing with his children on the beach. It is notable that all 25 participants wrote in a continuous and coherent narrative form, rather than, for example, writing a list, or using bullet points. It may be that as EAP students, participants were accustomed to essay writing, and it may also be

that the way in which the instructions were provided on the worksheet would naturally elicit such a composition.

6.4.5 A Note on Positive Emotions

It was noted that there were several indications of positive emotions within learners' visions, and we have already seen one such example in Ben's vision, when he says that he feels great and happy. We also saw this in the visions in which family life and children played a significant role, such as Rafael's ('We are on the beach, laughing and playing') and Mandy's vision ('I love hugging and playing with them'). A few other statements displaying positive sentiments were:

> 'I am very delighted I am so successful'.
> 'Happiness is full of my life. Why? Because I believe I will have a long life, rich, healthy and happy.'
> 'I believe that my life is really warm in the future'.
> 'I am eating, drinking, playing and happy! I like it!!'

However, not all visions explicitly contained words or phrases relating to emotions; that the majority of visions in the study exhibited a sense of positive emotionality was more an observation on the researcher's part, which was compounded by the positivity that emanated from the atmosphere in the research room. When participants were writing about their visualisation experience they were deeply engaged, almost losing track of time, reminiscent of the altered state of consciousness or awareness that Richardson (2020) associates with imagery. After the visualisation there was an energy in the room which also seemed to impact positively on participants' mood. Furthermore, after the research was over, some students commented that visualising their Ideal L2 Self and writing about it had made them feel it could become a reality, and in turn this had made them feel excited; in other words, inspired a sense of energy and optimism. These observations correspond with the definition of positive affect as "a state of high energy, full concentration, and pleasurable engagement" (Watson & Tellegen, 1985)

The ideal self is compatible with the notion of positive psychology: any activity that involves thinking about an ideal future will clearly invoke positive thinking. When this

activity is a) supplemented with tangible images and experienced almost as a perception-like state and b) tied to core identity, it is likely to induce even more of a positive effect. Research has shown that daily imagination of best possible selves can increase optimism and mood (Meevissen *at al.,*2010), and Peters *et al.* (2011) found that visualising and writing about the ideal self, similar to the method in this study, led to an increase in positive expectancy, i.e. an increased belief in the likelihood of the successful outcome occurring. One insight provided by a participant on his worksheet (without any prompting) appears to confirm this sense of increased expectancy and optimism:

> This is my first time to image my future seriously. I have imaged my future before. But the most special one must be today's. It seems every part of my future is so close, which makes me feel moved. I can't wait to get there. I love this activity.
> (Will)

Will has effectively pre-experienced his future through mental imagery by creating an alternative reality which, as he says, feels 'so close'. From an emotional perspective, imagery "can have the same intensity of impact on humans as the material environment" (Dornyei, 2020, p. 104), and this is evident from Will's reflection when he says he feels 'moved'. The fact that he 'can't wait to get there' also indicates a sense of energy and intensity of desire. However, without further evidence, it is not possible to determine exactly which emotions Will experiences when he feels moved. Is he happy? Is he excited or hopeful? Is he moved to act? Had the study directly probed participants about their emotional experiences, it could have provided valuable insights into the affective dimensions of their ideal selves.

6.5 Limitations

We have seen that learners are able to elaborate their Ideal L2 Selves in a narrative form, thereby implying that they have created a visionary experience. However, although we have gained an insight into the qualitative content, we do not know about the more technical details such as level of vividness, the senses involved or how easy or difficult it was to imagine. In this sense, not much light has been shed on the multi-sensory, simulatory nature of the vision.

Further, although the study recorded general positive feelings, it would have been useful to learn more about the nature of the emotions experienced, as well as how learners perceived

the effects of these emotions after visualising. Without specific data on the types of emotions felt, it is challenging to fully comprehend the emotional dynamics at play. Future research might benefit from classifying the emotions created by vision and considering their importance from a motivational aspect. Understanding how different emotions contribute to or hinder motivation may enhance the design of vision-based interventions.

6.6 Conclusion

At a domain-specific level, the most commonly referenced domains (career, travel and family) demonstrate how learners expect to be using English in many aspects of their daily lives in the future. This highlights the utility that the L2 provides in the long term by enabling learners to be successful in their careers, to travel freely and explore the world and also to equip their children with English language skills, and thus evidences their motivation at a pragmatic level.

However, this study has also shown that vision-based thinking takes the L2 beyond professional and pragmatic relevance alone. The personal context brought into play the identities that were salient in learners' self-concept, other than as language learners. Interestingly, although learners were guided to visualise their Ideal L2 Self, visions were often situated in intimate settings, and included details of future children, romantic partners and pets. As a result, the Ideal L2 Self was framed within a more global self, in which the boundaries between language learning and personal life became blurred. It was fascinating to see this personal side of learners' goals, as they are not normally expressed in the classroom in normal goal-setting exercises. Vision reflects a central aspect of the self and thus provides a framework for understanding the learner from a holistic perspective.

Through the process of visualising their ideal self, learners developed stronger connections between the L2 and their personal lives. They situated their L2 self within an integrated life narrative that reflected their core identity, embedding the L2 into meaningful and authentic situations. This integration not only added purpose and meaning to achieving the L2 vision but also created self-concordant goals and enhanced positive emotions. It was fascinating to observe this personal aspect of learners' goals, as such goals are not typically expressed in standard classroom goal-setting exercises.

CHAPTER 7 Enhancing the Ideal L2 Self: Testing Three Techniques of Imagery Enhancement

7.1 Introduction

The first study in this thesis has explored the content and characteristics of the visions held by L2 learners, helping to identify common scenarios they imagine for their ideal futures. All 25 participants successfully created an L2 vision, thus meeting the preliminary stage requirements of the Motivational Vision Intervention programme (Dörnyei & Kubanyiova, 2014), which mandates that the learner must have a vision.

The current study aims to focus on the second phase of the programme: Strengthening the Vision. The central premise of this phase is that, for the vision to have a motivational impact, it must be vivid and detailed. However, we cannot assume that all learners inherently possess vivid and elaborate visions. Given that mental imagery abilities vary widely among individuals (e.g. Galton, 1880; Cummings & Williams, 2012), it is more realistic to expect significant variability in the vividness and detail of visions within a class of language students.

This recognition of mental imagery as an ability, within the context of L2 motivation, is important, because imagery research shows that those who benefit most from visualisation are those who are better at imagery in the first place (see Williams *et al.*, 2013). Athletes with superior imagery skills have demonstrated superior performance and wellbeing, greater confidence and self-efficacy, as well as lower anxiety and stress levels (Cumming & Williams, 2012; Williams & Cumming, 2015). In fact, research suggests that an individual's imagery ability is the factor most likely to impact on the efficacy of an imagery intervention (ibid). Therefore, it seems very likely that imagery ability is a key mediator in determining the potential impact of the Ideal L2 Self; after all, if a language learner is unable to visualise effectively, how can they create an image of a future self that will exert any motivational impetus?

It follows then that training and developing imagery skills should be a key consideration in designing Ideal L2 Self interventions. Magid and Chan (2012) found that learners' visualisation ability was crucial for enhanced imagery use, impacting both the detail of their vision and their emotional involvement. They noted that L2 learners might need

teacher assistance to develop this skill (2012, p. 122). However, L2 research has not yet explicitly addressed the training of imagery skills. In sports, athletes often have imagery coaches, and similarly, L2 learners will need guidance and support for effective vision interventions. Encouragingly, research shows that imagery ability is not fixed and can improve with practice and experience (Marshall & Wright, 2016).

So, how can language learners' imagery skills be developed? Chapter 4 outlined several sport psychology techniques for imagery training. Among these, Layered Stimulus and Response Training (LSRT; Cumming *et al.,* 2017; see 4.6.2) appears particularly suitable. LSRT builds images in layers, starting simply and adding details progressively. Based on Lang's bioinformational theory (1979), LSRT divides mental images into three propositions: stimulus (scenario details), response (visualiser's reactions), and meaning (personal interpretation). LSRT uses these to create and enhance images through a cycle of "image, reflect, and develop" (Figure 13).

Step 1: Image: The visualiser generates a simple image of the target situation. This can be described aloud or written down. It can also be rated for vividness.
Step 2: Reflect: The visualiser reflects on the content of the image, and thinks about what was easy or difficult to imagine.
Step 3: Develop: Based on the reflection, the visualiser modifies the basic image by adding a 'layer' to it. This could be the addition of a stimulus, such as another person or a different sense; or a response detail, such as a feeling of excitement. The image can then be rated for vividness again.

Figure 13 *The Three Stages of LSRT (Cummings et al., 2017, p. 12)*

In this way, LSRT adopts a systematic, gradual, and reflective approach to building up the image: beginning with a basic image, and gradually adding more information in progressive stages. Throughout the process, the visualiser is encouraged to reflect on their image in order to develop it further. In terms of its effectiveness, research has found that LSRT is more successful at improving imagery ability than imagery rehearsal alone (Williams *et al.,* 2013; Marshall & Wright, 2016; Cumming *et al.*, 2016) and also that, in particular, LSRT has been effective in boosting the imagery ability of novice users of imagery, and those who have weaker imagery ability (Williams *et al.*, 2013). This could

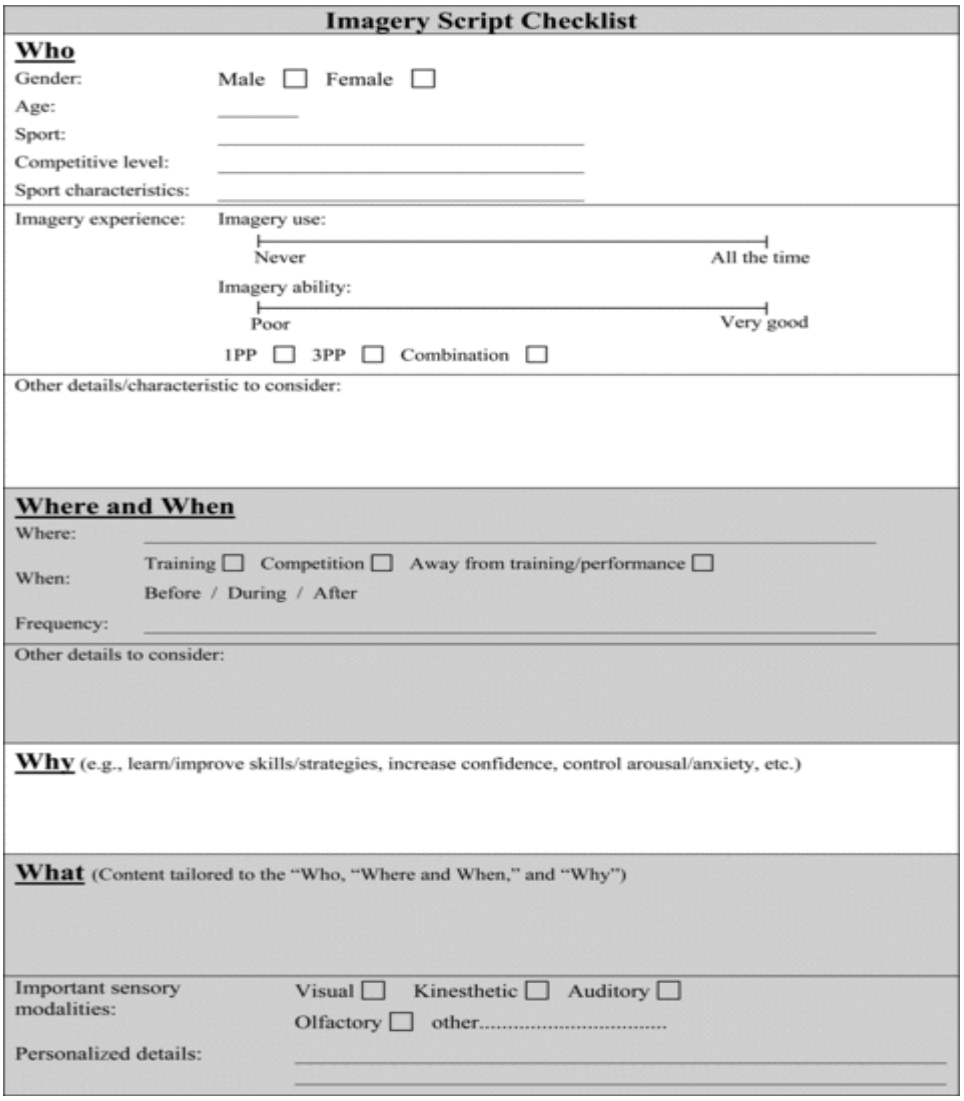
potentially be significant for language learners, who, unlike athletes, are not generally familiar with the use of conscious and targeted mental imagery, and may be classed as novice users. By creating their image in progressive layers, it can be hypothesised that language learners will be able to create visions that are not only easier to control, but are also richer and more detailed.

A potential caveat with LSRT may be that it will initially require a knowledgeable practitioner to guide the learner through the 'image, reflect and develop' process. However, it is feasible that an L2 teacher or personal tutor would be able to conduct this, particularly with the aid of a resource such as 'A Guide to LSRT', a paper published by Cummings and colleagues in 2017, which provides clear instructions for carrying out LSRT interventions in general contexts.

Another approach that may be helpful for enhancing L2 learners' imagery is the personalised script (see 4.6.1 for detail). Although scripts are by no means a new method of delivering guided imagery, the majority of scripts in imagery interventions have tended to be standardised (Cooley *et al*., 2013), and it is only more recently that the importance of *personalised* scripts has been stressed. As Williams and Cumming point out, "imagery is a highly personalised experience that can mean different things to different individuals" (2013, p. 73), and therefore the exact same script may carry different connotations for different people. They emphasise that a script will only be effective if the user can relate to its content, and therefore it is important that the visualiser should be involved in selecting the content to be imaged, as well as in the writing up of the script.

From a language learner's perspective, the personalisation of scripts is especially important, because standardised scripts with generic settings may cause issues relating to situational relevance, as well as problems from a lexical perspective. Personalisation, however, will enable the use of known vocabulary, as well as ensure that it is familiar, rather than unknown, situations that are being imagined by the learner. It can be hypothesised therefore that personalised scripts should make it easier for a language learner to visualise their Ideal L2 self in a way that is individually relevant; thus functioning to induce more meaningful and vivid imagery.

Detailed guidelines have also been published for imagery practitioners to follow when devising and delivering personalised imagery scripts (Developing Effective Imagery Scripts by Williams *et al*., 2013). These guidelines are presented in the form of a practical checklist, which takes into account the **5 W's**: **who** is imaging, **why** they are imaging, **when** and **where** the imagery will take place, and based on this information, then generates the content, i.e., **what** will be imaged (Figure 14).



Imagery Script Checklist

Who

Gender: Male ☐ Female ☐

Age: _____

Sport: _____

Competitive level: _____

Sport characteristics: _____

Imagery experience: Imagery use:

Never — All the time

Imagery ability:

Poor — Very good

1PP ☐ 3PP ☐ Combination ☐

Other details/characteristic to consider:

Where and When

Where: _____

When: Training ☐ Competition ☐ Away from training/performance ☐

Before / During / After

Frequency: _____

Other details to consider:

Why (e.g., learn/improve skills/strategies, increase confidence, control arousal/anxiety, etc.)

What (Content tailored to the "Who, "Where and When," and "Why")

Important sensory modalities: Visual ☐ Kinesthetic ☐ Auditory ☐

Olfactory ☐ other.....

Personalized details: _____

Figure 14 *Imagery Script Checklist (Williams et al., 2013)*

A point to note is that personalised imagery scripts can be delivered through either a written or audio format. While both of these comprise a personalised pre-planned scenario, one is read by the visualiser, and the other is listened to. Interestingly, Andersson and Moss (2011) found that imagery scripts delivered via audio were more effective than written

scripts. Although they did not specifically measure impact on imagery ability, they found that audio scripts led to significantly greater increases in self-reported exercise behaviour in adults. Kim *et al.* (2011) found the same, reporting an increase in self-reported exercise, alongside increases in goal orientation, intentions, and action planning. Therefore, for the purpose of this study, it is of interest to investigate whether language learners might also find audio scripts more useful: and therefore, personalised written scripts (WS) and personalised audio scripts (AS) will be treated as two alternative techniques of imagery delivery.

To summarise, the discussed techniques—LSRT, personalised written scripts, and audio scripts—appear promising for enhancing L2 learners' imagery and potentially improving their ability to envision their L2 selves more vividly. Investigating this hypothesis requires a new research approach. To my knowledge, this is the first time that imagery enhancement techniques, such as personalised scripts and LSRT, are being applied in the context of L2 research. Previous L2 vision interventions have often used tools like the vision tree and pre-prepared scripts without focusing on imagery skill enhancement or personalisation (see Vlaeva & Dörnyei, 2021). This study introduces imagery enhancement techniques—personalised scripts and LSRT—in L2 research for the first time. The research procedure will draw from established guidelines for LSRT (Cummings *et al.,* 2017) and personalised scripts (Williams et al., 2013), tailored to fit the context of L2 motivation and the language learners involved.

7.2 Considerations in Research Design

The next section will detail the thought process behind the research design, and outline some important considerations which were necessary to contemplate before being able to finalise the precise research questions and procedure.

7.2.1 Study Content and Structure

Imagery ability studies in sport commonly assess imagery ability through intervention studies, using questionnaire scores, pre and post-intervention, to identify improvements in imagery ability (e.g. Williams *et al.* 2013; Quinton *et al.*, 2014; Weibull *et al.*, 2015). This experimental design appears to be a simple, straightforward and suitable approach to take in this study, whereby each technique may be tried and tested separately for its effects on

imagery pre and post-treatment. In this way, the effectiveness of the three methods can be tested and compared across three groups.

However, sports studies on mental imagery generally ask participants to create motor imagery of sporting scenarios or actions. The seminal LSRT study by Williams *et al.* (2013), which compared the imagery enhancement effects of three methods (namely visual imagery, motor imagery and LSRT), focused on golf-specific imagery ability. Participants in the visual imagery group were asked to "imagine seeing the golf ball run along the green and gently roll into the hole" while participants in the motor imagery and LSRT groups were instructed to "imagine yourself correctly and successfully performing the golf putting task" (Williams *et al*, 2013, p. 62). An important question that thus arises relates to the *content* that will be imagined in the present study. In other words, what should participants be asked to imagine?

It is imperative that learners visualise content relevant and meaningful to their language learning, focusing on imagery of their desired future L2 Self. Asking them to simply 'imagine yourself as a successful L2 user' may be too abstract and unfocused. It could be more effective to prompt participants to visualise scenarios and situations where they use the target language successfully, either of their own choosing or from a list of common scenarios identified in Study 1 of this thesis. For instance, they could imagine 'chatting with a group of international friends in English' or 'communicating easily in a shop or restaurant'.

Another important consideration relating to content is that it is not known if all learners will be able to use mental imagery to readily bring an Ideal L2 Self vision to mind. Therefore, prior to the intervention, it will be beneficial for participants to receive some preparation and guidance for the use of targeted multisensory imagery, as it is unlikely that they will be familiar with this. It is also very important that participants are relaxed, and mentally in a 'stress-free zone' to encourage optimal visualising.

With these thoughts in mind, I decided to adopt a practical approach by designing a workshop for the intervention. This allowed time to begin with an introduction to the Ideal L2 Self and mental imagery, as well as to perform some relaxation exercises; and these were then followed by an introduction to the imagery enhancement methods by working together through their processes. In this way, the workshop enabled the researcher to act as a

facilitator, whilst also giving participants the space to participate actively and become acquainted with the techniques.

Furthermore, a workshop design enabled the research to be positioned as a training session for imagery skills. Although it was made clear that the study was part of PhD research which aimed to gather data on the effectiveness of imagery techniques, and consent to participate in this was sought from all participants, it was also important that the learners providing their time for this study stood in line to receive some benefit, or outcome, from the techniques. This is in keeping with Ørngreen and Levinsen's view of the workshop as a research methodology with a dual objective:

> The workshop is, on one hand, authentic, as it aims to fulfil participants' expectations to achieve something related to their own interests. On the other hand, the workshop is specifically designed to fulfil a research purpose: to produce reliable and valid data about the domain in question (Darsø, 2001; Wakkary, 2007; Rossi and Sein, 2003; Jaipal and Figg, 2010; Yurdakul, et al., 2012; Baran, et al., 2014)
> (2017, p. 72)

Upon further consideration, it was decided that the study should extend beyond a single workshop. While a workshop would capture pre- and post-ratings of imagery in one session, skill development typically requires sufficient time and practice. Therefore, after the initial workshop, participants were instructed to continue practising their imagery at home using their chosen technique for one week. At the end of this period, they reconvened for an evaluation session to assess the effects of one week of practice on their imagery ability.

Thus, the study was conducted as an intervention over a period of 9 days (full details of Procedure are in Section 7.8). This timeframe aligns with similar studies that have evaluated the effectiveness of various imagery enhancement methods. For instance, Rademaker and Pearson (2012) employed a 5-day training regime for visual imagery, while Williams *et al.* (2013) conducted a 4-day imagery intervention to test LSRT.

The next section will now go on to explain which specific measures were selected for measuring imagery. The primary objective of this study was to investigate the impact of mental imagery enhancement techniques on language learners' imagery ability, distinct from

athletes. Therefore, it was crucial to include measures relevant to imagery ability in the context of language learning.

7.2.2 How to Measure Imagery Ability in the L2 context

Chapter 4 discussed the definition of imagery ability, and reported that the dimensions that are most commonly measured in imagery ability studies are the accuracy, ease of generation, controllability, duration and vividness of imagery (Cummings & Eaves, 2018). However, the authors (ibid) recommend that researchers and practitioners should be purposeful when selecting measures of imagery ability by considering whether they adequately capture the key dimensions that are of interest to the study. So, which dimensions are pertinent from the perspective of language learners' imagery ability?

As we know, it is vividness that is emphasised in the conditions for the motivational capacity of the Ideal L2 Self (Dörnyei, 2014). This is not surprising when we consider that vividness encompasses "the clarity, sharpness, and sensory richness of the image" (Cummings & Eaves, 2018, p. 358), as well as "the extent to which an individual's subjective experience of imagery is similar to actual perceptual experience" (Pearson *et al.*, 2013, p. 7). In this sense, vividness is paramount from a two-fold perspective, whereby it determines not only the *quality* of the image, but also the level of its functional equivalence, i.e how *real* the image will feel. Consequently, vividness as a measure is highly relevant for this study, in that it indicates how immersive learners' imagined experiences are: when they are visualising their Ideal L2 Self, do they feel as if it is really happening and that they are really there? While this level of absorption in a mental simulation may seem strange, this is in fact the fundamental premise behind the definition of mental imagery as a "quasi-sensorial, quasi-perceptual experience" (Morris *et al*., 2005, p. 19). Thus, a truly vivid image would consist of one that is clear, multisensory, and *looks and feels* virtually the same as reality. Indeed, from this perspective, it could be contended that vividness in itself is a sufficient predictor of imagery ability!

For novice imagery users like L2 learners, the ease of generating mental imagery is also a critical aspect of imagery ability. Visualising can be initially challenging, requiring attention and mental effort, and as Cumming and Eaves note, newcomers to imagery rehearsal may struggle to maintain an image for even a brief period (2018). While creating a static mental image (e.g., picturing an object) might be straightforward, envisioning the Ideal

L2 Self often involves constructing and sustaining detailed scenes or "mental movies" (Ji et al., 2019, p. 114). In Study 1 of this thesis, learners crafted intricate Ideal L2 Self narratives, such as leading a business meeting or conversing in the L2 with children or classmates. The ease with which learners can create and immerse themselves in such scenarios is crucial for the efficacy of their visualisation. As Henry postulates, the impact of ideal selves hinges on their accessibility and ease of imagination—how effortlessly they can be envisioned and brought into conscious awareness (2015).

A further benefit of considering ease as a distinct measure of imagery ability is that it relates to the entire process of imagery: from initial generation of the image, through to its maintenance and manipulation. In this sense, vividness and ease can be considered as complementary measures: for whilst vividness relates to the *product* of the image, in terms of its clarity and potency, ease encompasses the *process*. With this in mind, imagery ability in this study will be rated for two items: vividness and ease of generation. These items will be measured at three points: before the intervention (T1), immediately after the intervention (T2), and after one week of imagery practice (T3); (see Section 7.7 for specific instruments used).

7.2.2.1 General Imagery Ability

In order to assess imagery ability, many sports studies also employ a general imagery ability questionnaire in combination with more specific imagery measures. For example, in their LSRT study, Williams *et al.* (2013) measured the effect of imagery enhancement techniques on imagery ability specific to their study (golf-putting), and also on general imagery ability separately. Mental imagery, being a skill that is not observable, is reliant on the self-assessment and report of the visualiser. In order to somewhat limit this limitation, a combined approach, by using a variety of imagery evaluation measures, is recommended (Collet et *al.*, 2011); the assumption being that combining general and specific measures may provide a more comprehensive assessment of the individual's overall imagery ability.

In light of this, the present study will also consider imagery from a general, as well as a specific, perspective. For this purpose, the Plymouth Sensory Imagery Questionnaire (Psi-Q; Andrade *et al.,* 2014; see Appendix E) appears to be appropriate, as it examines imagery from a multisensory perspective across seven senses: Vision, Sound, Smell, Taste, Touch, Body Sensation and Emotional Feeling. Each of the seven senses has five items and

scores can be combined to give an overall imagery ability score; however, average scores can also be calculated for each sense, thus providing an insight into imagery ability in specific modalities.

The Psi-Q has been widely utilised in imagery research and has been demonstrated to be a valid and reliable measure (Williams *et al.*, 2013). Unlike many imagery questionnaires, which are designed for sport, the Psi-Q appears suitable for use across all research domains, due to the usage of items that are common to daily life; for example, respondents are asked to imagine seeing a cat climbing a tree, imagine hearing an ambulance siren, imagine smelling a rose. Nevertheless, it is good research practice to conduct a pilot study, as we cannot assume that all items are comprehensible from the perspective of English language learners. This pilot study will be detailed in Section 7.7.2.

To conclude this section, this study will assess learners' imagery ability from two perspectives: general ability and specific ability. Imagery ability specific to the content of the imagery intervention (i.e., the Ideal L2 Self) will be rated for two items: vividness of imagery and ease of generation. General imagery ability will be measured through the sum of multisensory vividness scores on the Psi-Q. It is pertinent to note firstly, that the Psi-Q uses a scale of 1-10, and in order to maintain consistency, vividness and ease will also be measured through a rating scale of 1-10; and secondly, that the Psi-Q will be employed at two points: before the intervention (T1) and after one week of imagery practice (T3). This is because the Psi-Q questionnaire is lengthy, and asking participants to complete it twice in one session (both T1 and T2) may cause fatigue.

7.2.3 Considering the Impact on Motivation

Whilst the focus of this study lies on the improvement of imagery ability, it is important to remember that improvement of imagery ability is not the end goal per se; rather, it is to enhance the mental image of the Ideal L2 Self in order to elicit a higher level of motivation towards the target image, thus propelling the learner to work harder towards actualising their Ideal L2 Self. Therefore, from our perspective, the motivational impact of the image is of special interest. If the image that is created by the visualiser has little motivational impact, despite being relatively vivid or easy to generate, it is unlikely to have much effect on future

action. Therefore, it will be useful to consider the three imagery enhancement techniques in terms of the level of motivation they are able to inspire towards the Ideal L2 Self.

For this purpose, I decided to incorporate motivation as an additional measure, by assessing the level of motivation that participants feel towards their Ideal L2 Self, before the intervention (T1), immediately after the intervention (T2); and after one week of imagery practice (T3). A rating scale from 1 to 10, similar to the one used for vividness and ease of imagery, will be employed for these assessments.

7.2.4 The Need for a Qualitative Component

To summarise so far, the impact of the three techniques will be measured quantitatively through:

- a multisensory general imagery ability questionnaire (Psi-Q) at two points: pre (T1) and post intervention (T3)
- ease and vividness measures through rating scales at three points: pre (T1) and post intervention (T2 & T3)
- A motivation measure through rating scales at three points: pre (T1) and post intervention (T2 & T3)

This data will provide numerical ratings of the ease and vividness of imagery, and the motivation of participants, before and after the use of their specific imagery enhancement tool. However, this quantitative data will not provide any information related to the experiences of participants when using these techniques. How do learners feel about using these techniques? Do they experience any difficulties while using them? Is imaging in layers difficult? Is there anything in the intervention process that needs to be adapted? The aim of this thesis is research that is applicable in the classroom: so, if learners find that the imagery methods used are complex or cumbersome, this would be an important consideration for the design of future interventions, as it could detract from the motivational effect of the vision. In fact, learning more about the practical feasibility of these methods in the classroom is key, particularly given that applied imagery is a largely new and still unexplored concept in the L2 field.

For this reason, I deemed it necessary to incorporate a qualitative component, in order to delve into the *phenomenological experience* of participants, and capture their insights,

experiences and reflections; without which, the study would present an incomplete picture of the techniques in terms of their usability with L2 learners. Upon deliberation, this was incorporated in the form of an open-ended questionnaire, to be administered at the end of the intervention: with the questionnaire asking participants to reflect on the extent to which the imagery techniques were helpful; their feelings about visualisation and the particular technique that they used; as well as their views on the overall experience (see 7.7.4 and Appendix F). The merits of conducting focus groups were considered, and whilst these could well be valuable, focus groups were not selected, as the type of feedback gathered in this design is generally based on the collective overall experience (Dörnyei, 2007), and individual nuances may not emerge, as not all participants are keen to speak aloud in a group and share anything unusual they may have experienced. Therefore, an open-ended evaluation questionnaire was selected as the most pragmatic option, and also to encourage individuals to freely share their thoughts and feelings about their experience. The benefits of this were thought to outweigh the fact that data collected this way would likely be less rich.

An imagery journal (or diary) was also added to the qualitative instruments (see 7.7.3). Originally intended for LSRT, where recording imagery details supports the 'image, reflect, develop' process, I expanded its use to all three conditions in this study, as journal entries would offer firsthand evidence of imagery content and its evolution over the week from the participant's perspective. Hence, the imagery journal had the potential to provide rich and valuable information related to the imagery experience. Additionally, the physical presence of the journal across all conditions would serve as a tangible reminder for participants to engage in daily imagery practice, potentially enhancing adherence to the intervention.

Thus, this study will adopt a mixed methods methodology, guided by a pragmatic approach that advocates combining research methods to address complex research questions (Teddlie & Tashakkori, 2009). Riazi and Candlin (2014) explain that mixed methods research integrates quantitative and qualitative instruments within a single design to capitalise on their respective strengths and mitigate weaknesses. Here, both quantitative and qualitative components will be employed to assess imagery enhancement tools in terms of their impact on imagery ability and motivation, as well as to examine their implementation process. This approach aims to offer a comprehensive understanding of the effectiveness of these tools in enhancing language learners' imagery skills and motivation.

From an empirical standpoint, the imagery journal and questionnaire will enrich and enhance the numerical ratings by providing qualitative insights into the vividness of participants' imagery and the ease of visualisation. These qualitative instruments will also illuminate how and why changes in imagery ability may occur, and offer insights into participants' levels of motivation throughout the week. This mixed methods approach will enable a multi-layered exploration, acknowledging the complexity of the research issue by offering two distinct yet complementary perspectives or interpretations. This aligns with Dörnyei's recommendation that successful mixed methods research hinges on "principled mixing" (2007, p. 167), where complementary data collection enhances and clarifies results from each method (Greenee *et al.,* 1989).

7.3 Research Questions

Based on the research design considerations outlined in Section 7.2, the precise research questions of this study can now be formulated as follows:

RQ 1*: Can imagery practise through LSRT improve language learners' imagery ability and impact motivation towards their Ideal L2 Self?*

RQ 2*: Can imagery practise through Written Scripts improve language learners' imagery ability and impact motivation towards their Ideal L2 Self?*

RQ 3*: Can imagery practise through Audio-Scripts improve language learners' imagery ability and impact motivation towards their Ideal L2 Self?*

RQ 4*: How suitable are these imagery enhancement techniques for use with L2 learners?*

7.4 Overview of Study Design

The study was conducted over a period of 7 days and consisted of 2 group sessions (on Day 1 and Day 7 respectively), supplemented by individual imagery practice between the 2 group sessions. Detailed procedure is explained in Section 7.8; however, an overview can be seen in Table 6.

Week 1: Group Session
• General Imagery Ability Questionnaire (T1: Psi-Q) • Choose a Language Learning Goal • Pre-intervention Visualisation and Ratings (T1: Vividness, Ease and Motivation) • Intervention:Use layering OR write out own script OR write and listen to own script • Post-intervention:Re-visualise and rate again (T2: Vividness, Ease and Motivation)
Individual Imagery Practice over the week
• Visualise daily and record details in Imagery Journal
Week 2: Group Session
• Final Visualisation and Ratings (T3: Vividness, Ease and Motivation) • Repeat General Imagery Ability Questionnaire (T3: Psi-Q) • Post Experience Evaluation Questionnaire

Table 6 *Overview of Study 2 Design*

7.5 Participants and Setting

The research was conducted at a university in the UK, at which I was teaching classes of English for Academic Purposes (EAP). I invited prospective participants (who were not my students) via a call for volunteers through posters placed in the building that housed the department for international students of English Language. The posters informed participants that they would be taking part in research on training for mental imagery skills and instructed them to contact me via email if they were interested in taking part.

A total of 39 students initially volunteered over a period of three weeks, a number considered suitable for the mixed method design of the study. This quantity was chosen to manage the qualitative data load from questionnaires and imagery journals effectively, while allowing for a margin of safety in case of participant attrition. Initially, 13 participants were assigned to each condition. However, due to non-attendance at sessions or incomplete data collection, 4 participants were excluded (2 from LSRT and 2 from audio script). Therefore, the final study included data from 35 participants: 11 in the LSRT condition, 13 in the written

script condition, and 11 in the audio script condition. Among these participants, 24 were female (69%) and 11 were male (31%), with ages ranging from 19 to 25 years and a mean age of 21 years.

Participants in this study were enrolled in various English Language courses at the university, including Foundation, Pre-sessional, and Erasmus programs. The Foundation program spans a year and prepares students for university degree courses. In contrast, the Pre-sessional program achieves the same objective but in a shorter time frame, ranging from 6 weeks to 4 months. Entry into the Foundation program requires a minimum overall IELTS Band score of 5, while the Pre-sessional courses have a higher entry requirement of IELTS Band 6.5, reflecting their shorter duration. Other than the differences in length of study and initial entry requirement, these courses are similar in terms of being focused solely on Academic English, and requiring successful completion of final assessments in order for students to progress on to their chosen degree courses. Both of these are therefore 'high stakes' courses, with students having invested considerable amounts of money to study abroad, with the intention of remaining in the UK for several years to complete their degrees.

The other participants in this study were Erasmus students, who were studying at the university as part of Erasmus (European Community Action Scheme for the Mobility of University Students). The Erasmus is a programme that was established in 1987, offering European university students the chance to study abroad at a different university, for a period of between 2 -12 months. The standard admission requirement for Erasmus is a minimum of IELTS Band 6. These students, already being enrolled on degree programmes in their home country, do not need to pay any extra tuition or study-related costs to the university. They spend their time attending classes related to their main discipline, supplemented with some mandatory classes in Academic English - for which reason, they were classed as English language learners. This was therefore a different cohort from the Foundation and Pre-sessional, in that they were in the UK for a shorter period of time, were not paying fees, and did not need to complete any exams at the end of their Erasmus course.

Thus, the sample unexpectedly comprised two sub-groups. This was not anticipated in advance, and so the sample size was not set accordingly; however, fortunately, the sample

distribution was balanced of its own. Of the 35 participants in the study, 19 (54%) were enrolled in Foundation and Pre-sessional courses, while 16 participants (46%) were Erasmus students.

In terms of nationality, the sample was mixed, with representation from European, Chinese and Arab students. A full breakdown can be seen in Table 7, but it is pertinent to note that the majority of those on the Foundation and Presessional were Chinese students (*14 out of 19)*. The Erasmus participants, as might be expected, were European. Participants were randomly allocated to one of three groups (LSRT/Written Script/Audio Script) for the purpose of taking part in an imagery intervention.

Nationality	**L1**	**Number**	**Male**	**Female**	**Course**
Chinese	Mandarin	14	5	9	Foundation / PS
French	French	5	-	5	Erasmus
Spanish	Spanish	5	3	2	Erasmus
Italian	Italian	3	2	1	Erasmus
Greek	Greek	2	-	2	Erasmus
Iranian	Persian	2	-	2	PS
Taiwanese	Mandarin	2	-	2	PS
Belgian	French	1	-	1	Erasmus
Iraqi	Arabic	1	1	-	Foundation

Table 7 *Overview of Study 2 participants by gender, nationality and course (total=35)*

7.6 Ethical Considerations

Recruitment for the study began after ethical committee approval for the study had been received from the School of English, University of Nottingham (included in Appendix D). Those who agreed to participate were offered a choice of some dates on which to attend the workshop.

At the beginning of their first session, all participants were briefed about the nature, purpose and procedure of the study through a background sheet and gave their written informed consent to take part in the intervention (see form in Appendix B). They were asked to provide basic demographic information, specifically, their name, age, gender and course. It was reinforced that their names would not be used in the report, and that pseudonyms would be used. They were also informed that their participation was voluntary and that they could withdraw from the study at any point.

7.7 Instruments

We will now move on to consider each instrument used in the study in detail, namely the Visualising your Goals worksheet; the Psi-Q; the imagery journal and the evaluation questionnaire. This section will also provide details of the pilot study carried out for the Psi-Q.

7.7.1 'Visualising Your Goals: A Training Exercise' worksheet

As mentioned previously, it was decided to conduct the first session in the form of a training workshop, and for this purpose I devised a worksheet (one for each condition), in order to guide learners through the process. The worksheet was entitled 'Visualising your Goals: A Training Exercise', and followed closely the advice presented in 'A Guide to LSRT' (Cummings *et al.,* 2016) and 'Developing Effective Imagery Scripts' (Williams *et al*., 2013); whilst also being tailored to the research questions and needs of the participants in the present study.

The worksheet for each condition is explained in detail in the Procedure (7.8). For the purpose of this study, it was necessary that participants rated their visualisations for vividness, ease and motivational impact, both immediately before and after treatment. Therefore, these ratings were integrated into the training worksheet: the worksheet therefore

had a dual purpose of guiding participants through their imagery technique, as well as collecting the quantitative data related to imagery ability and motivation. Prior to use, the worksheet was piloted with two students. These were checked for validity with a fellow PhD researcher, and it was decided to remain with the worksheet as it was.

7.7.2 Mental Imagery Ability Questionnaire

In order to assess general imagery ability, the Plymouth Sensory Imagery Questionnaire (Psi-Q; Andrade *et al.,* 2014; Appendix E) was selected. This is a 35-item measure of mental imagery ability for seven sensory modalities (vision, sound, smell, taste, touch, kinaesthetic, and emotion). Participants indicate how clearly they can imagine a series of items (e.g., image of a friend, smell of fresh paint, taste of mustard) and rate this on a 10-point vividness rating scale (from *'no image at all' to 'as vivid and clear as real life'*).

Pilot Questionnaire

Prior to commencing the study, the Psi-Q was piloted with 10 students (not participants of this study). These students were volunteers from my EAP classes, and represented a range of backgrounds (4 European; 3 Chinese; 1 Iranian and 2 Arab) and genders (7 female; 3 male). They were informed about the nature and aims of my project, and expressed their willingness to take part in the pilot. It was reinforced that none of their data would be used in the results of the study; rather it was to inform methodology and instrument design. Pilot participants were ensured of confidentiality and anonymity of their data, and ethical consent was obtained.

In a session lasting around 45 minutes, the group was asked to complete the Psi-Q, and then share their feelings about the questionnaire. This was done by first noting their feedback about the format and content of the questionnaire in written form; and then in a group discussion, from which key points were noted by the researcher.

Issue 1: Translation and Familiarity Issues

During the subsequent discussion, it became apparent that not all questions were appropriate from a language learner/international student perspective. Several students highlighted that they either (a) *did not understand* some of the lexical items, or (b) understood the lexical item but had *no familiarity or experience* of the word, thus deeming the item impossible to rate (a summary of these items can be seen in Table 8).

Items that caused particular problems in terms of meaning were: *bonfire*, *mewing* of a cat, a *stuffy* room, ambulance *siren*, *mustard*, *black pepper*, *fur* and *furious*. Whilst in terms of familiarity, some students said that they were not sure how it felt to 'relax in a warm bath' as they did not generally take baths in their country; or to 'jump in a swimming pool' or to 'taste sea water' as they did not swim. Further issues arose with 'the smell of newly cut grass', and 'the feeling of being in love', as again, these had not been experienced by some students. This raised an important point regarding imagery questionnaires, whereby it became clear that without having experienced and created a memory of a particular item or setting, people will find it very difficult to imagine it.

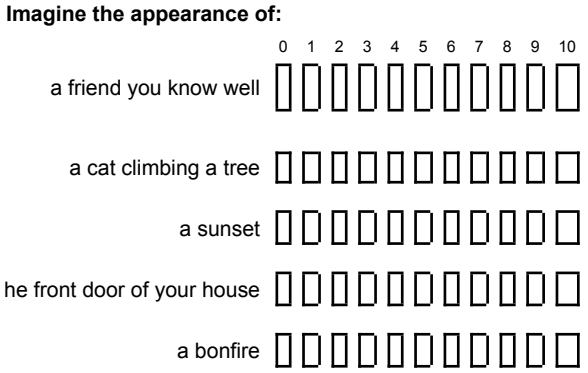
Lexical Issues	**Unfamiliarity Issues**
Bonfire	The smell of newly cut grass
Mewing of a cat	The taste of seawater
Ambulance *siren*	The feeling of being in love
Mustard	Threading a needle
Fur	Relaxing in a warm bath
Furious	Jump into a swimming pool

Table 8 *Problematic Items from the original Psi-Q*

Further feedback on the pilot questionnaire also suggested that it was a little lengthy and time consuming, and might be shortened to 3 items, rather than 5 items, for each sense. This facilitated the replacement of the problematic items, whereby the 12 items in Table 8 were omitted from a shortened version of the questionnaire, which was devised for the purpose of use with language learners and international students. No new items were included, other than 'fire' to replace 'bonfire'. As students expressed no issues with the rating scale (1-10 on vividness), this scale was maintained.

Issue 2: Format

A second issue highlighted in the pilot discussion related to the itemised, or list, format of the questionnaire. Two pilot participants stated that they had found it difficult to imagine such a discrete list of items and settings in a short space of time. To illustrate this point, we can take a look at the visual section of the Psi-Q:



This section requires the user to imagine a friend that they know well, then a cat climbing a tree, followed by a sunset, a front door and a bonfire. The issue highlighted by two participants was that it was difficult to switch from imagining one item to another:

> "I was seeing the face of my close friend and then to change the picture to a cat was not easy at all. I still had the picture of my friend very clear in my mind." (written comment)

Another participant agreed, and provided some examples from the tactile section which contained items that were very different from each other:

> "The touch part asks us to imagine touching warm sand and a soft towel, and then all of a sudden a sharp pin and then icy water. I found this difficult as I was imagining myself on a beach. I did not want to move to the cold all of a sudden!" (written comment)

With regard to items in the kinaesthetic section, the same participant also commented:

> "When you feel yourself relaxing in a warm bath it is really difficult to suddenly take yourself out and walk in the cold." (written comment)

After these issues were highlighted, a verbal discussion ensued, as a group, with all pilot participants. While not all participants had experienced the same problem of 'switching' between items, it was suggested that a questionnaire based on scenarios may possibly be a

more appropriate format; whereby the visualiser would construct and imagine one scenario at a time, and then rate multisensory items related to that scenario. Possible scenes and settings were discussed with the pilot group, and based on this, a scenario-based questionnaire was devised by the researcher after the initial pilot session. Specifically, three settings were chosen and detailed:

Scenario 1

Imagine that you are in a park, and then imagine the scenario below:

You can see the park in front of you. You can hear the sound of children playing in the park, and you can smell roses nearby. You can feel a gentle breeze blowing through your hair as you reach out to touch and feel the newly-cut grass with your hand. You taste the ice-cream in your mouth, and enjoy the feeling of being relaxed.

Scenario 2

Imagine that you are outside in a storm, and then imagine the scenario below:

You are in a storm. You see a flash of lightning in the sky above you, and smell burning wood somewhere nearby. You reach out and touch the rain and it feels ice-cold. You can also taste the rainwater in your mouth. You are completely wet all over from the rain, and you feel cold. Suddenly you hear the sound of something heavy crashing to the floor.

Scenario 3

Imagine that you are on a beach, and then imagine the scenario below:

You are on a beach. You can see the sun setting in front of you, and hear the sound of the gentle waves in the sea. Somewhere nearby you can smell a barbecue and you feel hungry. You pick up the soft towel next to you and touch it. Then you are swimming in the sea. You can taste the salty sea water in your mouth as you swim.

After imagining each scenario, participants then rate the vividness of each item; for example, for scenario 3, they will rate how vividly they can see the sun setting, how vividly they can hear the waves in the sea, how vividly they can smell the barbecue and so forth. In

this way they are able to build up an entire image of a setting, and rate each sensory item in order of being related to that setting. There were seven items for each setting, and therefore twenty-one items in total.

A second pilot session then took place with ten new participants, also students from my classes who volunteered to take part, in which this new scenario-based questionnaire was tested. To gauge whether this questionnaire made an impact on learners' imagery vividness scores, I decided to contrast it with a questionnaire which used the same items, but was in the traditional layout of the Psi-Q, i.e., an itemised list without any scenarios. Therefore, in this pilot, participants completed two different questionnaires - comprising the same items, but presented in different formats. Following the session, scores for each participant were compared on both questionnaires, in order to identify whether there was any difference between the scoring between the two versions. Did vividness scores increase when an item was imagined within a particular scenario?

Although this was an interesting exercise, the results from this second pilot were not conclusive, whereby there was no real clarity on whether vividness was higher when participants imagined a particular item within a scenario rather than a list. Participants also provided verbal feedback on which version they preferred, if any, and again this feedback was mixed, without any real consensus. Therefore, for the purpose of this study, I decided to remain with the shortened version of the Psi-Q from the first pilot.

7.7.3 Imagery Journal

In order to practise their imagery, the intervention required participants to visualise daily for one week. An imagery journal was designed to enable participants to keep a record of their imagery practice during the week. The journal was a document comprising a single entry for each day (seven entries in total). Each entry required participants to note the date, time and place of visualisation, followed by a description of their visualisation. It also asked them to note how they felt after visualising, as well as enquiring whether there was any change in content from the last visualisation (see Figure 16 for sample template). In addition, LSRT participants were asked to reflect on whether they could add anything further to the image next time, thus enabling them to continue with the process of reflection and layering throughout their week of imagery practice.

Date:	*Time:*	*Place where you are imaging:*
Description of what you visualised: How did visualising make you feel?: Was there any change from your last visualisation?		
LSRT ONLY: Can you add anything further to your image next time?		

Figure 16 *Template for Entry in Imagery Journal*

7.7.4 Experience Evaluation Questionnaire

A questionnaire consisting of 15 open ended questions (Appendix F) was prepared to explore participants' overall experience of the study. Themes were loosely structured around:

Practicalities: General feelings about visualisation and keeping a diary; ease of visualisation; time and place of visualising; specific implications arising from using layering / written script / audio script method.

(Sample Questions: Did the place or time that you visualised make any difference to the experience? Did the adding of more details reduce vividness or improve vividness, or have no impact?)

Affective factors: Emotional impact of visualisation; impact on behaviour and motivation; feelings towards using this technique in the future.

(Sample questions: Would you like to continue visualising your goal in the future? How did visualising make you feel? How long did this effect last?)

Imagery content and ability: Perceptions of imagery vividness; imagery content over time; changes in goals; senses used in imagery.

(Sample Questions: Did the vividness of your image change over the week? Which senses did you use when you were visualising? Was there any change in imagery or goal?)

7.8 Detailed Procedure

39 participants were selected to take part after responding to a call for volunteers placed around the university campus. They contacted the researcher via email to express interest, and were emailed back with details about the project, and invited to take part with options of some different dates. Ethical consent forms (Appendix B) had been distributed prior to the intervention and any outstanding forms were collected in the first session.

Participants were randomly allocated to one of three groups (LSRT/Written Script/Audio Script) for the purpose of taking part in an imagery intervention, which was composed of two sessions over two weeks. Each session was conducted in a small group and group size was limited to eight, which is consistent with the procedure for imagery training outlined by Williams *et al.* (2013). As there were thirteen participants in each condition, this meant that in total, the researcher ran two workshops for each condition (note that the final data analysis consisted of data from 35 participants due to non-completion of some parts of the study).

7.8.1 The Workshop

In order to maximise efficacy of the intervention, it was important that participants understand the function and importance of mental imagery (Holmes & Collins, 2001, Williams *et al.*, 2013). Accordingly, at the beginning of the session, participants were provided with an explanation of the concept of imagery for motivational purposes and its benefits and potential impact. They were also guided through a multisensory practice to ensure that they were familiar with the process of visualisation. The materials utilised for this practice were the same as those used in Study 1: Introduction to the general ideal self and visualisation training (see Figure 8 in Chapter 6).

Participants were first provided with 10 minutes to complete the Psi questionnaire. Following this, they received the "Visualising Your Goals: A Training Exercise" worksheet. This worksheet was designed to provide structured guidance and was divided into three steps, which are outlined briefly here and then elaborated upon in detail:

- **Step 1: Choosing your Goal.** The aim of this step is to elicit participants to select an ideal language learning scenario or L2 goal that is personal and meaningful. The chosen goal is elaborated with details such as when and where it will take place, who might be involved, and why it is important for the participant.
- **Step 2: Visualising Goal Achievement.** The goal is visualised. This imagery is rated, thus providing a pre-treatment measure (treatment refers to the imagery enhancement technique). Key details of the visualisation are recorded on the worksheet.
- **Step 3: Devising a Script or Layering your Image.** Participants are guided through their allocated technique (WS, AS or LSRT). They then use this to re-visualise their chosen goal from Step 1, and provide post-treatment measures of their imagery.

7.8.1.1 Step 1: Choosing your Goal

The aim of this step was to enable participants to select a goal that was meaningful, important and personal to them, which they would go on to visualise. For this purpose, they were provided with some sample goals on the worksheet (Figure 17), based on the most common themes from Study 1, but were also advised that they were free to choose their own goal.

Common Goals of Language Learners (you may choose one of these)

1. *I want to speak English more fluently/confidently.*
2. *I want to be able to write a very good essay in English.*
3. *I want to communicate easily using English in shops and restaurants.*
4. *I want to have many international friends and chat to them in English.*
5. *I want to communicate more confidently with my classmates and lecturers.*
6. *I want to use English to travel abroad and explore independently.*
7. *I want to use English to help me achieve success in my career.*
8. *I want to learn English to such a standard that I can teach it to others.*

Figure 17 *Example Goals provided (Study 2)*

After choosing their goal, participants went on to elaborate it with detail (see Figure 18), using the '5 W's checklist' (Williams *et al.*, 2013). This step was included in all three conditions, because as Cumming and colleagues explain, "imagery benefits will be maximized when individuals are aware of the reasons why they are imaging and what content will best help them to achieve their aims" (2016, p. 8).

My Language Learning goal is:
When do you hope to achieve this goal?
Where might you be when you achieve this goal?
Who else might be involved in the achievement of this goal? *(e.g. friends, teachers, parents?)*
How will you feel when you have achieved this goal?
Why is this goal important to you?

Figure 18 *Selecting and elaborating the goal (Step 1 on Worksheet)*

7.8.1.2 Step 2: Visualising Goal Achievement

After performing some relaxation exercises (guided by the researcher, using the script from Study 1; Figure 9 in Chapter 6), participants were asked to imagine that they had succeeded in achieving their desired goal from Step 1, and to visualise this as clearly and vividly as possible for 30 seconds. They recorded the details of their visualisation on their worksheet, and then rated this *initial visualisation* for vividness, ease and motivational impact using the scales in Figure 19, thus providing baseline pre-intervention ratings for T1.

IMAGERY VIVIDNESS: How realistic and clear is your imagery?

0=No image at all 10=As real and clear as real life

1	2	3	4	5	6	7	8	9	10

EASE OF GENERATION: How easy is it to create the imagery in your mind?

0=Not able to create image at all 10=Extremely easy to create

1	2	3	4	5	6	7	8	9	10

MOTIVATION: How much do you want to achieve your goal after visualising?

0=No desire to achieve goal at all 10=Extremely strong desire to achieve goal

1	2	3	4	5	6	7	8	9	10

Figure 19 *Rating scale for Initial Visualisation (Step 2 on Worksheet)*

7.8.1.3 Step 3: Devising a Script or Layering your Image

From this point on, the procedure varied according to the group, and participants were guided specifically according to their allocated condition, i.e., LSRT, written script (WS) or audio script (AS). The procedure for each group will now be detailed separately.

- **Written Script**

Participants in the WS group were instructed to write an imagery script for the purpose of visualisation. This was based on their initial visualisation; however, they were asked to elaborate this as far as possible, by including details of what they were doing, thinking, and feeling; as well as details of the environment around them. Prior to writing out their imagery script, they were prompted to think about these additional elements and plan their script using the questions on the worksheet (Figure 20). A sample script was also shown, and participants were asked to use their preferred perspective, either first person (1PP) or third person (3PP).

Why are you visualising? What do you want to achieve from the visualisation?

e.g. self-confidence/ self-belief / better study habits / improved time management / improve particular skills

Where and when will you visualise?

I.e. Place / time / how often
What will you visualise? Include details of what you are doing /details of what you are thinking /how you are physically feeling Details of the environment/what you see and hear around you Your preferred perspective (first person/ third person / both)

Figure 20 *Prompts for Planning the Script (Study 2)*

After planning their script, participants were provided with time (up to 15 minutes) to write out their own imagery script as a narrative on the worksheet. The script began with some instructions for relaxation to ease participants into their visualisation (Figure 21). Participants were instructed to include as much detail as possible from their plan.

For a few moments allow yourself to take several nice, long, deep breaths. Notice the cool air coming in, filling your lungs, and the soothing warm air going out. Just let all your thoughts float away as you bring your attention to your breathing... in and out. You might mentally scan your body and notice if you're holding any tension in your muscles. If you are, just gently let all that tension melt away with every out breath. Bring your attention to your breathing, in and out... in and out... let yourself feel more and more comfortable sitting where you are. Write your script here:

Figure 21 *Preamble to the Script (Study 2)*

Subsequently, participants were given some quiet time to visualise, using their script and the scenario that they had devised. They then rated their visualisation for vividness, ease and motivation, using the same scale as for the initial visualisation (Figure 19), thus providing post-intervention ratings for T2.

- **Audio Script**

Participants in the audio script group followed the exact same procedure as the WS group; with the only difference being that after writing their script they were instructed to go into a separate room and record themselves reading their script on their mobile phones. They

then used this audio recording to visualise and complete T2 ratings for vividness, ease and motivation (Figure 19).

- **LSRT**

Participants in the LSRT group were asked to think about their initial visualisation in Step 1, and to suggest one detail that could enhance their image in order to make it more realistic; for example a sound, a colour or a feeling. They were then instructed to add this to their initial scene and visualise it, thereafter reflecting upon how it had affected their image (see Figure 22).

Layer 1: **What is the first detail you would like to add to your image?**
Think about something that you could add to your image to make it more real and vivid. For example, you could add sounds, or colours, or smell. Which detail would you like to add? Please note it down:
Now add this detail to your initial image, and visualise it for 20 seconds.
How does it affect your image? Please note down below:

Figure 22 *Layering instructions (Step 3 on Worksheet)*

This process was repeated twice, with participants adding two more details, or layers, that they believed would enhance the quality of their imagery. After the layering process was complete, participants visualised their final image once more and rated it for vividness, ease and motivation, thus providing their ratings for T2.

Thus, the only difference between the LSRT group and the WS and AS groups was that a layering approach was used within the LSRT group to build up the initial image in layers. However, participants in the WS and AS groups had also been encouraged to include as much detail as possible and plan their scripts thoroughly. Consequently, the groups were matched as closely as possible in terms of planning time and level of instruction provided; the attention given to the imagery content; as well as the duration of the session. It is important to note that in all groups, the process was designed to ensure that visualisation content was

participant-generated, and individuals were not directed to incorporate specific elements by the researcher, other than the initial suggestions for the selected goal.

7.8.2 Visualising at home

At the end of Session 1, all participants were provided with a hard copy of an imagery journal which was to be completed every day, starting from the next day. This diary instructed participants to record: (a) *what they had visualised; b) how it made them feel (c) the time and place of visualising and (d) if there was any change from the previous visualisation* (see Figure 16 in 7.7.3 for template).

In addition, LSRT participants were also asked to reflect on whether they could add anything further to the image next time, thus enabling them to continue with the process of reflection and layering through their week of imagery practice. Participants were advised to complete the journal as diligently as possible, as not only was this essential to the study, but also because keeping a record of their visualisations would be beneficial for them to track the development of their own imagery. However, they were also reminded that the option of withdrawing from the study was available to them at any time. An email reminder regarding completion of the diary was sent to participants 2 days after the workshop.

7.8.3 Evaluation Session

This hour-long session was scheduled to occur one week after the initial session. Participants attended in the same groups as their respective workshops and were informed that the primary objective of this session was to facilitate reflection on their visualisation skills and their overall experience throughout the week.

First, the researcher instructed participants to complete the PSi questionnaire to assess their general imagery ability post-intervention (T3). Following this, participants were given time to reimagine their goal and assess their imagery experience using the same rating scale as before for vividness, ease of generation, and motivation, thereby providing post-intervention ratings (T3).

The session then concluded with the completion of the questionnaire with 15 questions, designed to explore participants' overall experience of the study (Appendix F). At the end of the session, participants were thanked for their time, and advised that in order to benefit from this exercise, they should continue with their visualisation. They were also

directed to some further reading on this: specifically, 'Motivating Learning' by Hadfield and Dörnyei (2013), which contains many practical exercises for L2 visualisations.

7.9 Data Analysis

The study collected both quantitative and qualitative data, and therefore analysis was initially performed separately in two steps (quantitative followed by qualitative). However, given that the study utilised a mixed methods approach, the aim was to "produce a more comprehensive answer to the research question than a pure method alone" (Dörnyei, 2007, p. 303), and it was important that the analysis take an approach to reflect this. Therefore, the third step of data analysis consisted of the integration of data, whereby qualitative findings were used to expand, and possibly illuminate, the results from the quantitative data. These three steps of data analysis will now be outlined in more detail.

7.9.1 Quantitative Data

Measures relating to specific imagery ability (changes in ease of imaging, vividness of imagery, and motivation to achieve goal) were assessed, for each condition, at three time points during the study: T1, T2 and T3.

Measures relating to *changes in general imagery ability* were assessed through the Psi-Q, which was administered at two points: T1 and T3. This assessed any change in imagery ability across seven different senses.

This data (for all 35 participants) was input into an Excel file. It was screened for missing values, odd values, and rechecked with participants' ratings on their worksheets. Once screening was complete, bar charts were generated to track the measures for each condition, as well as to compare the measures across all three conditions. Charts were also generated to track any change in general imagery ability between T1 and T2 (see 7.10 for charts).

7.9.2 Qualitative data

Qualitative data had been gathered using two instruments: 1) *an imagery journal*, which was completed over one week, and 2) *a post experience evaluation questionnaire*, comprising 15 open ended questions. The initial step in analysing this qualitative data involved multiple

readings to achieve familiarity and comprehension. During this process, noteworthy words, comments, and phrases were highlighted for further consideration. Memos were also employed, allowing the researcher to add personal reflections and insights.

The subsequent stage involved content analysis, commencing with "coding"—the initial structuring of raw data into preliminary categories derived from common words, phrases, and concepts. Although no specific framework was employed for coding, the process was guided by the research questions and the central themes of imagery ability, motivation, and the usability of the techniques under study. Additionally, themes from the evaluation questionnaire, such as practicalities, affective factors, imagery content, and ability, provided further structure for the analysis.

However, as is the case when we have qualitative data, it is possible that other themes may emerge that are not directly related to the research questions, and therefore analysis was carried out with an open mind and a curious lens. This was particularly the case when reading the imagery journals of participants, in which the emergence of participants' 'stories' in a more narrative style became apparent. Therefore, this part of the data analysis was more inductive and exploratory.

7.9.3 Data Integration

The previous two steps had provided two discrete sets of data, and in the next step, both of these sets were summarised and condensed for each participant into a tabular form. This provided an overview or a 'profile' for each participant, based on their qualitative feedback, in combination with their quantitative ratings. This was an important step of data processing, as it enabled an overall and in-depth understanding of each participant's imagery experience; and importantly, a chance to consider the numbers alongside the words: what could the results tell us together?

This case by case analysis of each participant facilitated the identification of some particular cases that were fairly typical, as well as some outliers; for example, those that had been particularly successful at utilising the imagery technique, or those that had found it particularly difficult.

7.10 Results

The primary aim of this study was to examine the effects of three mental imagery enhancement techniques (LSRT, Written Scripts, Audio Scripts) on the mental imagery ability and L2 motivation of English language learners in a university setting. At the same time, the focus was also on probing into the experience of these learners in order to consider the suitability of these techniques for use with language learners. The research questions were as follows:

RQ 1: Can imagery practise through LSRT improve language learners' imagery ability and impact motivation towards their Ideal L2 Self?

RQ 2: Can imagery practise through Written Scripts improve language learners' imagery ability and impact motivation towards their Ideal L2 Self?

RQ 3: Can imagery practise through Audio-Scripts improve language learners' imagery ability and impact motivation towards their Ideal L2 Self?

RQ 4: How suitable are these imagery enhancement techniques for use with L2 learners?

The study was conducted with 35 EAP students over a period of 9 days and comprised 2 group sessions (a workshop on Day 1 and an evaluation session on Day 9), supplemented by independent imagery practice between the 2 group sessions. A reminder of the procedure and key measures can be seen below (see 7.8 for the full procedure):

Week 1: Group Imagery Workshop
• General Imagery Ability Questionnaire (T1: Psi-Q)
• Choose a Language Learning Goal
• Pre-intervention Visualisation and Ratings (T1: Vividness, Ease and Motivation)
• Intervention:Use layering OR write out own script OR write and listen to own script
• Post-intervention: Re-visualise and rate again (T2: Vividness, Ease and Motivation)
Individual Imagery Practice over the week
• Visualise daily and record details in Imagery Journal
Week 2: Group Evaluation Session
• Final Visualisation and Ratings (T3: Vividness, Ease and Motivation)
• Repeat General Imagery Ability Questionnaire (T3: Psi-Q)
• Post Experience Evaluation Questionnaire

The forthcoming section will present the results, beginning with the quantitative outcomes for all three techniques. This initial presentation will provide only a broad outline of the quantitative results, accompanied by some observations highlighting key findings and questions. Subsequently, in 7.11, these questions will be considered in detail, in conjunction with the qualitative results and pertinent literature. Thus, a comprehensive discussion will be conducted for each technique individually in 7.11, and this will at the same time address Research Question 4, which pertains to the suitability of these techniques.

7.10.1 Quantitative Results for Specific Imagery Ability and Motivation

Mean results for specific imagery ability (vividness and ease of imaging the Ideal L2 Self), as well as motivation towards the Ideal L2 Self will now be presented.

These measures were assessed at three distinct points: pre-intervention (T1), immediately after the workshop intervention (T2), and after one week of independent imagery practice using the designated technique (T3).

Vividness of the Ideal L2 Self

Participants were asked to rate the vividness of their Ideal L2 Self at T1, T2 and T3. The mean results for all 3 techniques are presented in Figure 23.

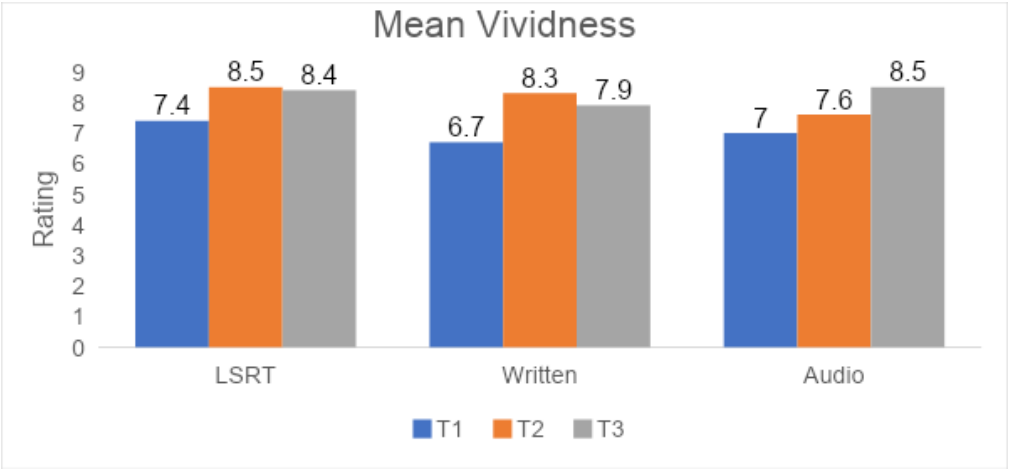


Figure 23 Mean Vividness for LSRT, Written Scripts and Audio Script

We can see that vividness of the Ideal L2 Self increased for all conditions from T1 to T2, indicating that the workshop intervention was useful for improving vividness. However, at T3, LSRT participants exhibited a slight reduction (0.1), and WS participants experienced a more pronounced decrease (0.4). This suggests that for these two conditions, one week of

independent imagery practice was not as effective as the workshop in enhancing vividness, and in fact led to a decline from T2.

However, the AS results displayed a different pattern, whereby vividness increased steadily throughout the intervention for participants using the audio script. In fact, the mean increase at T3 (0.9) surpassed the increase observed at T2 (0.9), indicating that independent practice with the audio script was very helpful for improving vividness of the Ideal L2 Self.

Ease of Imaging the Ideal L2 Self

Participants were asked to rate the ease of imagining their Ideal L2 Self at 3 points: pre-intervention (T1) and post-intervention (T2 and T3). Mean results for all 3 conditions are presented in Figure 24.

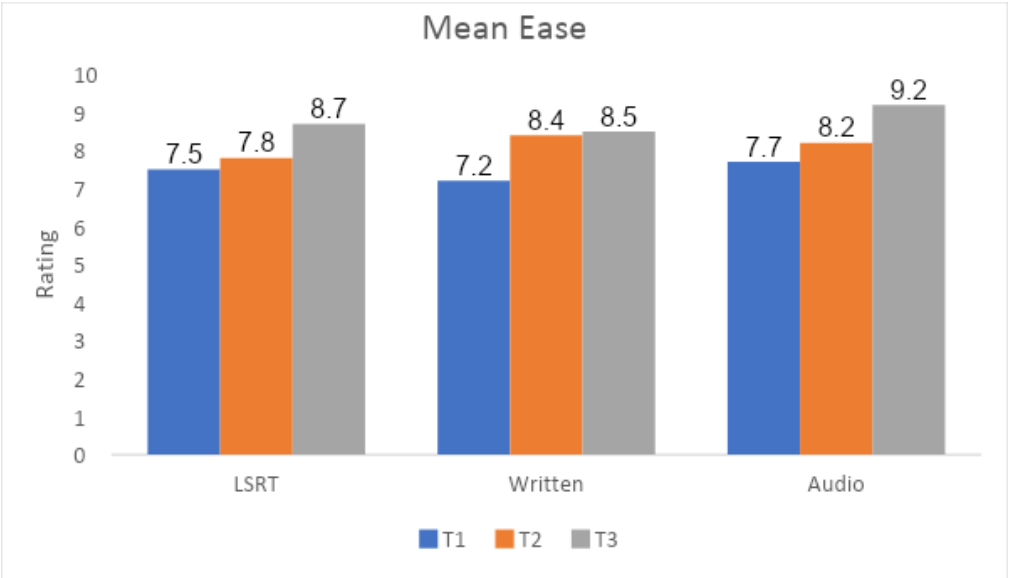


Figure 24 Mean Ease for LSRT, Written Scripts and Audio Scripts

We can see that all three techniques impacted positively on ease of imagining the Ideal L2 Self for all conditions. This is a positive finding, indicating that imagery practice, in any one of these forms, will contribute to making visualising easier. However, the chart shows a differing pattern for the conditions, whereby LSRT and AS participants experienced a more substantial increase at T3, i.e. after one week of practising imagery (1.0 increase for both), than at T2. This would align with expectations as it shows that more practice over the week yielded a greater improvement than one session.

However, the WS group did not follow this pattern, and surprisingly, WS participants reported the largest impact on ease after the workshop at T2 (an increase of 1.2), indicating that use of the script had impacted ease very positively during the workshop; but that its effectiveness had diminished with more practice over the week (the increase in ease at T3 was only 0.1).

Motivation towards the Ideal L2 Self

Participants were asked to rate their level of motivation towards their Ideal L2 Self at 3 points: pre-intervention (T1) and post-intervention (T2 and T3). Mean results for all 3 conditions are presented in Figure 25.

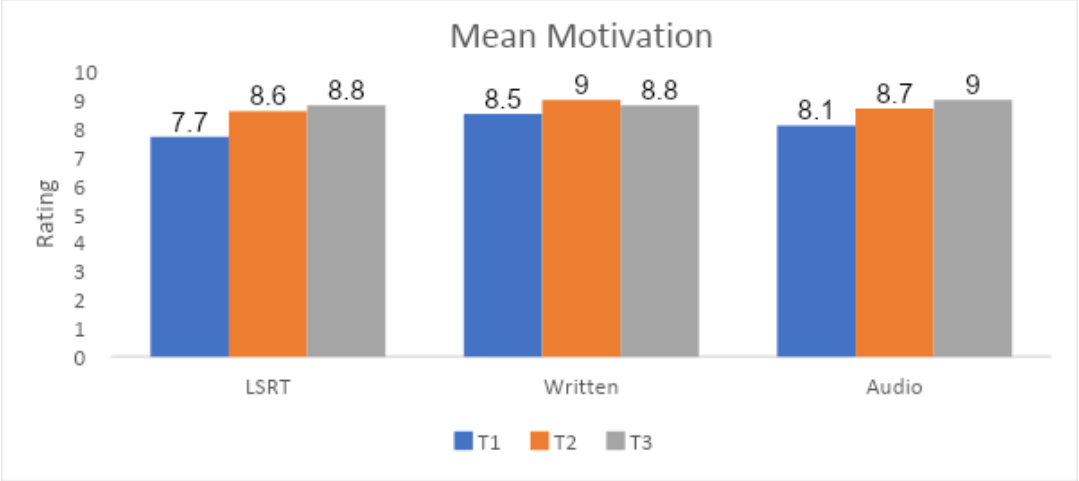


Figure 25 Mean Motivation for LSRT, Written Scripts and Audio Scripts

All three techniques enhanced participants' motivation towards their Ideal L2 Self over the course of the intervention. However, it was only for LSRT and AS participants that this enhancement was witnessed throughout the intervention, i.e. increases at both T2 and T3. In contrast, for WS participants, motivation slightly declined from T2 to T3, with a decrease of 0.2, despite having increased at T2 (by 0.5).

Notably, the more substantial increases occurred from T1 to T2 for all conditions, suggesting that the workshop had a more pronounced effect on motivation, with the LSRT group showing the largest increase (0.9), compared to 0.6 for AS and 0.5 for WS. This pattern aligns with the earlier results for vividness, where mean quantitative results for all

three conditions also demonstrated that greater improvements were seen after the workshop as compared to the week of individual practice.

7.10.1.1 Overview of Each Technique So Far

We have now seen the mean results for specific imagery ability (vividness and ease), as well as motivation towards the Ideal L2 Self. Charts showing the same data for the three conditions are now presented, in order to display the overall trends and provide a brief overview for each individual condition (Figures 26, 27, 28).

LSRT

Mean results from the specific imagery ratings of participants show that LSRT has been effective in enhancing both motivation towards and ease of imagining the Ideal L2 Self throughout the intervention (Fig 26). Mean vividness however, despite increasing by 1.1 at T2, reduces slightly at T3 (by 0.1).

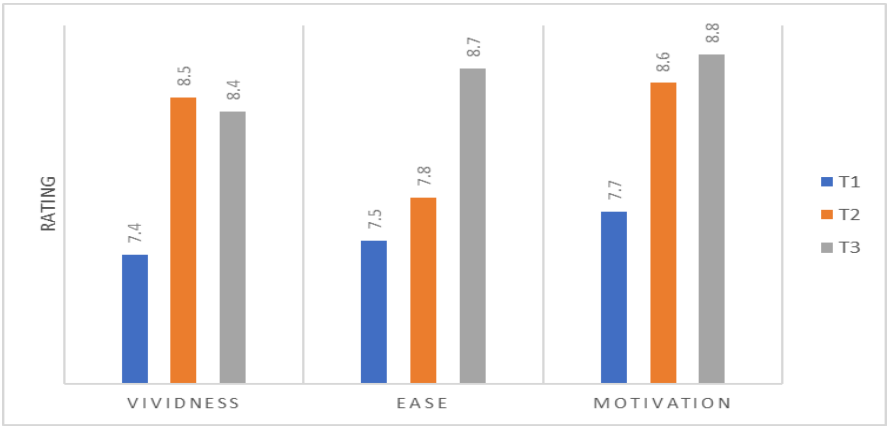


Figure 26 LSRT Specific Imagery Ability and Motivation (Mean)

Written Scripts

Mean results from the specific imagery ratings of participants (Fig 27) show that Written Scripts have been effective in enhancing all three measures at T2. However, only ease improves at T3, and vividness and motivation both experience a decrease (of 0.4 and 0.2 respectively).

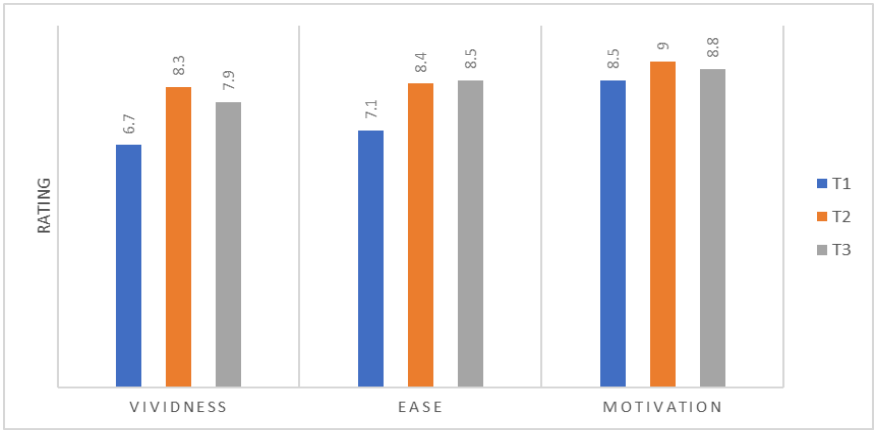


Figure 27 Written Scripts Specific Imagery Ability and Motivation (Mean)

Audio Scripts

Mean results from the specific imagery ratings of participants show that Audio Scripts have been effective in enhancing all three measures during the course of the intervention (Fig 28).

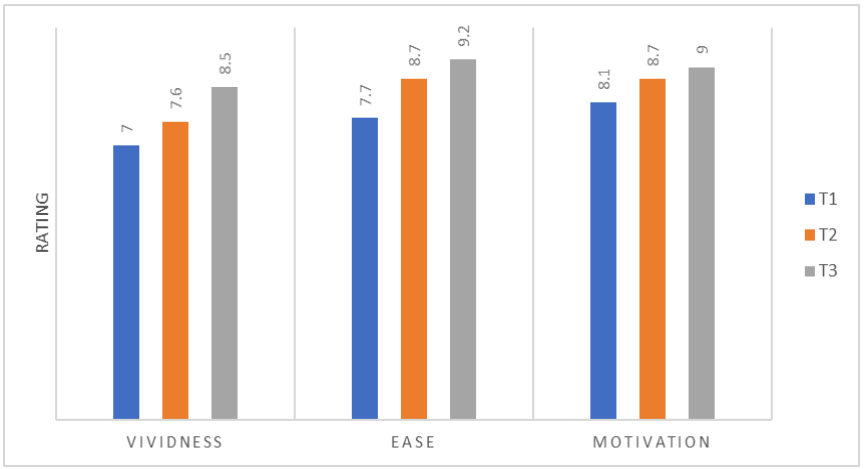


Figure 28 Audio-Scripts Specific Imagery Ability and Motivation (Mean)

Therefore, the results so far would suggest that AS was the most successful technique at improving specific imagery ability and motivation, when viewing the intervention overall. Although LSRT and WS showed effectiveness in enhancing ease, both saw a reduction in vividness at T3. Additionally, WS participants also experienced a slight decline in motivation at T3.

However, before reaching conclusions, we must also consider the results for general imagery ability. This measure was included to assess the intervention's impact not only on imagery ability specific to the Ideal L2 Self but also on overall imagery proficiency.

7.10.2 Quantitative Results for General Imagery

General imagery ability was measured at 2 points: pre-intervention (T1) and post-intervention (T3) through the Psi-Q. The Psi-Q is a multisensory questionnaire and asks participants to imagine everyday items in 7 sensory modes. Each sensory mode consisted of three items, and the maximum possible score was 210. Results based on the overall Psi-Q scores (a sum of all items in the questionnaire) will first be presented for each condition. Results pertaining to individual sensory modes will be presented after this.

LSRT

Overall results from the Psi questionnaire at T1 and T3 are shown for each of the 11 LSRT participants in Figure 29. The chart is laid out in order of participant's imagery ability at T1, commencing with the highest Psi-Q score.

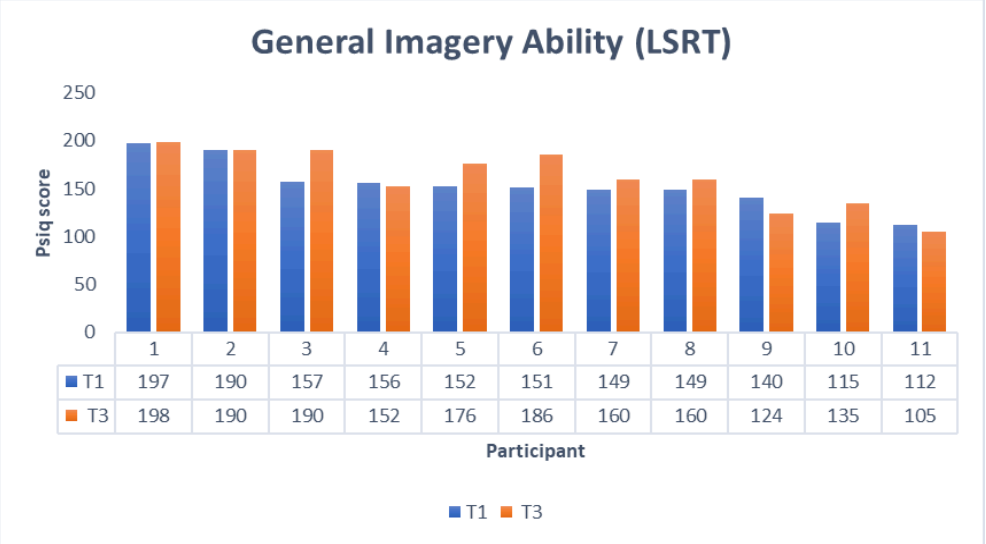


Figure 29 LSRT- Psi-Q Pre and Post for all Participants

We can see that six participants (1, 3, 5, 6, 7, 8, 10) exhibited an improvement in general imagery ability, while one participant (2) exhibited no change. Conversely, three participants (4, 9, 11) faced a decline in their general imagery ability throughout the week.

Notably, among those experiencing a decline, two were identified as among the group's weakest visualisers—Participant 11 (Miriam) and Participant 9 (Wendy). This observation contrasts with expectations, as research has suggested that LSRT is particularly beneficial for individuals with lower imagery ability (Williams et al., 2013). However,

intriguingly, Participant 10 (Marylou), whose T1 score was comparable to that of Participant 11, demonstrated an increase at T3. It will be interesting to see if the qualitative data can shed light on this, and the cases of these weaker participants will be explored in the qualitative analysis (7.11.1).

The strongest visualiser, Participant 1 (Alicia), witnessed only a marginal improvement in general imagery ability; and the second strongest visualiser, Participant 2 (Angel), showed no discernible change from T1 to T3. This raises the question of whether LSRT is less effective in enhancing the general imagery ability of individuals who already possess strong visualisation skills, as evidenced by both participants having T1 scores significantly higher than the rest of the group. Alternatively, it could be posited that reaching a higher rating at T3 was not feasible for these individuals. Qualitative findings may help to provide clarity on this matter, and a comprehensive examination of the cases of Alicia and Angel will be presented in detail in Section 7.11.1.

Written Scripts

Results from the Psi questionnaire, which measured change in general imagery ability, are shown for each of the 13 Written Script participants in Figure 30.

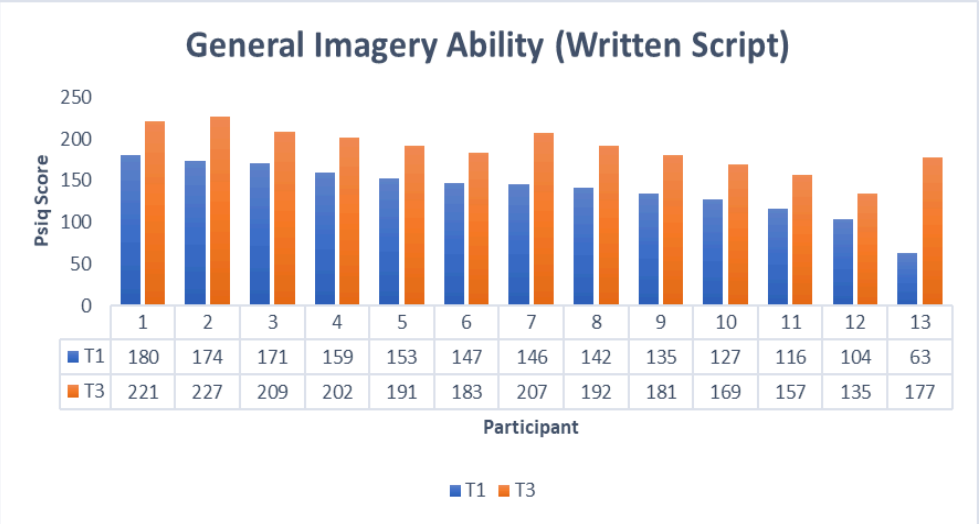


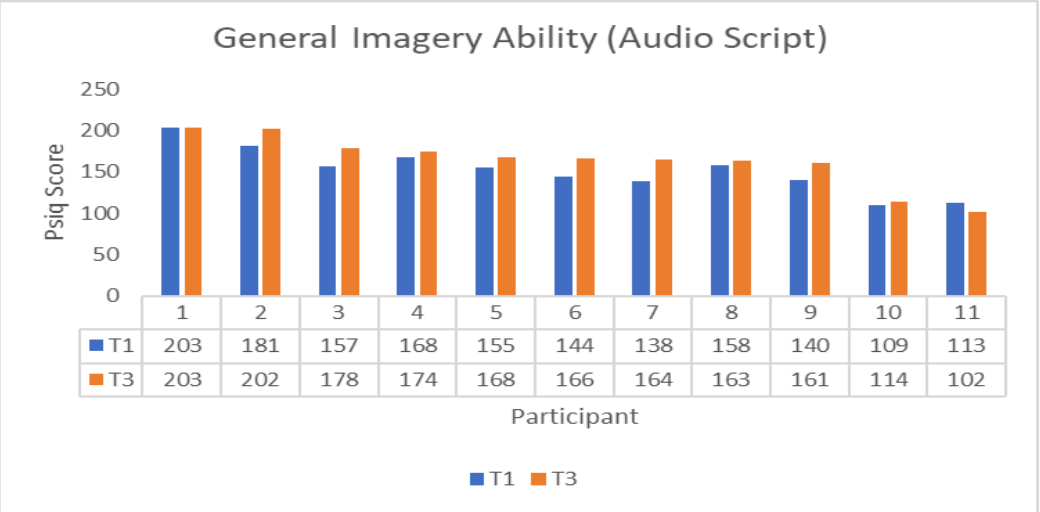
Figure 30 Written Scripts Psi-Q Pre and Post for all Participants

These results show that all 13 WS participants experienced an increase in general imagery ability over the week, regardless of whether they were weak or strong imagers, indicating that WS has been very effective at impacting general imagery ability. It is

particularly noteworthy that Participant 13, initially identified as the weakest visualiser in the group due to the lowest score at T2, experienced a substantial increase at T3 (the largest in the group). This observation suggests that WS has proven highly effective in enhancing the imagery ability of a weak visualiser—an outcome that in fact aligns with the intended impact of a different technique: LSRT.

Audio Scripts

Results from the Psi questionnaire, which measured change in general imagery ability, are shown for each of the 11 Audio Script participants in Figure 31.



	1	2	3	4	5	6	7	8	9	10	11
T1	203	181	157	168	155	144	138	158	140	109	113
T3	203	202	178	174	168	166	164	163	161	114	102

Figure 31 Audio Scripts Psi-Q Pre and Post for all Participants

The chart shows that 9 of the 11 participants experienced an increase in general imagery ability over the week. However, Participant 11, who had the lowest score at T2, experienced a decline in general ability, and the subsequent weakest visualiser (Participant 10) displayed a more modest improvement compared to the rest of the group. Interestingly, Participant 1, who had the highest score at T2, showed no change at T3. This pattern somewhat resembles the trends observed in LSRT, where both weaker and stronger visualisers appeared to benefit less in terms of general imagery ability. WS, on the other hand, diverged from this pattern, whereby the weaker visualiser had benefited the most.

So far, it appears that WS has been the most effective at improving general imagery ability, as all 13 participants experienced a substantial improvement, particularly the weakest visualiser. This was followed by AS, in which 9 of 11 participants improved (although the

weakest visualiser did not and the strongest saw no change). LSRT saw varied results, with 3 of 11 participants seeing a fall in general imagery ability, and one seeing no change. Notably, this fall was experienced by both the weaker and stronger visualisers, and this was also the case with AS. These results warrant an investigation, and the effect of these techniques on stronger and weaker visualisers will be explored in the qualitative section 10.X. However, before this, we will consider the quantitative results for individual senses emerging from the Psi-Q.

7.10.3 Impact of the Intervention on Individual Sensory Modes

The subsequent analysis pertains to the specific results concerning individual senses in the Psi-Q, of which there were seven (see Figure 32). The investigation sought to identify which sense exhibited the most notable change following the application of the techniques, and the highest and lowest change are highlighted for each condition in the chart.

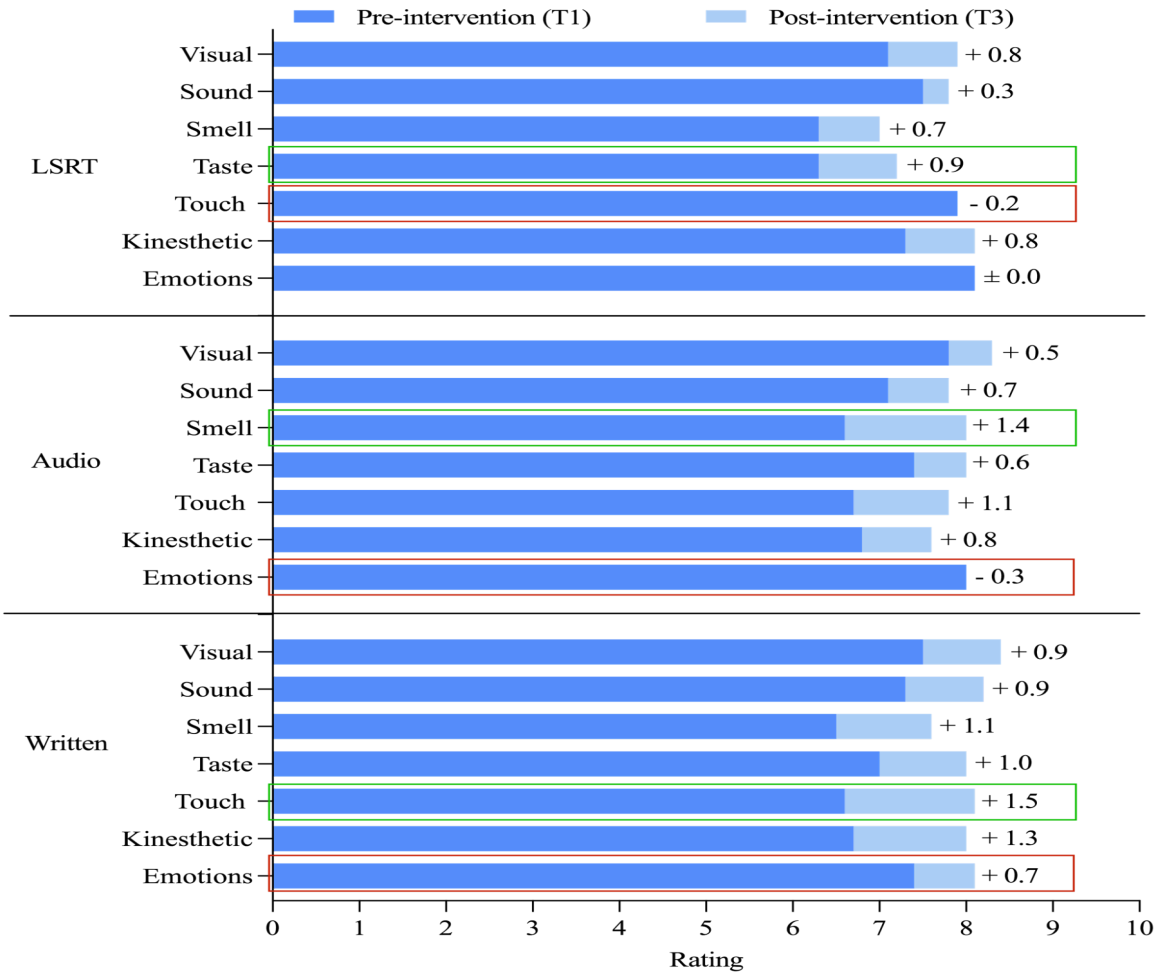


Figure 32 Breakdown of Psi-Q Results by Sensory Mode

For LSRT, improvements were observed in all modalities except emotional feeling, which saw no change, and touch, which decreased by 0.3. The highest increases were noted in taste (0.9), visual (0.8), and kinaesthetic (0.8), followed by smell (0.7).

In the Written condition, improvements were observed in all modalities. The highest enhancements were in touch (1.5), kinaesthetic (1.3), and smell (1.1), followed by taste (1.0). The smallest increase was in emotional feeling (0.7).

Audio participants exhibited improvements in all modalities, except emotional feeling which decreased by 0.3. The highest enhancements were in smell (1.2), touch (1.1), kinaesthetic (0.8), and sound (0.7).

In summary, emotional feeling consistently showed the least improvement in each condition, and in fact, decreased for AS, while remaining constant for LSRT.

7.10.4 Summary

So, what have we learned from the quantitative results?

- For LSRT and WS, vividness increased at T1, but reduced at T3, i.e. after one week of imagery practice. This indicates that for LSRT and WS, independent imagery practice was not as effective as the workshop at enhancing vividness. Why was it that only AS participants were able to continue to enhance vividness during their independent imagery use over the week?

- For enhancing the ease of imagining the Ideal L2 Self, all three techniques were successful. However, the increase was considerably higher at T3 for LSRT and AS participants (1.0 for both), as compared to WS, for whom the increase was only 0.1. This was surprising given that it was in fact WS for whom the largest increase in ease had occurred at T2. Why was it that independent imagery practice with the written script did not continue to enhance ease?

- Motivation toward the Ideal L2 Self received a positive impact throughout the intervention for both LSRT and AS, but fell slightly for WS at T3. Higher increases were reported for motivation at T2 than at T3. Why was it that participants did not see a larger increase in their motivation towards their Ideal L2 self after imagery practice over the week?

- Based on the specific imagery ability measures, WS was the least effective technique, with a fall at T3 for vividness and motivation both (based on mean results). However, in terms of general imagery ability, all WS participants had reported an improvement, which was in contrast to the other two conditions. Could it be that there were other factors at play in the WS condition?

- Stronger and weaker participants (according to their Psi-Q scores) displayed differing patterns for their general imagery ability in both LSRT and AS. It appears that stronger participants in LSRT and AS experienced no change (or saw a slight decline), and weaker visualisers experienced a decrease in their general ability. Why was it that the general imagery ability of weaker visualisers decreased after the interventions? Did the imagery techniques fail to address the specific needs or learning styles of weaker visualisers? And why was it that stronger visualisers did not benefit as much as others? Could it be that the interventions did not adequately challenge or stimulate their already proficient imagery skills?

- When looking at individual senses, as reported in the Psi-Q, emotional feeling was the sense that improved the least for every condition. This finding is noteworthy, given the crucial role of emotions in the vividness and realism of imagery experiences. Does this indicate that the imagery techniques used may not have effectively elicited emotional responses during the intervention?

It is important to address here that in this study, descriptive statistics were used to examine changes in imagery ability (vividness and ease) and motivation towards the Ideal L2 Self across three time points: pre-intervention (T1), post-intervention (T2), and post-practice (T3). Although ANOVA or repeated measures ANOVA could have been applied to test statistical significance, the decision to use only descriptive statistics was taken. This was, in part, due to the small sample sizes: with each group containing between 11 and 13 participants, the ability to detect significant differences would have been limited, and conducting inferential tests could have led to possible misinterpretation of the results. Descriptive statistics (specifically, changes in scores, means and graph representation of data) allowed for a clear understanding of the trends and patterns without reaching conclusions about statistical significance.

Additionally, the decision to forgo inferential analysis was influenced by the study's emphasis on gaining a deeper understanding of the trends, which was provided by qualitative data. The focus lay more on exploring patterns and in-depth individual experiences of participants, rather than confirming statistical relationships, and as such, more complex statistical analyses were not considered necessary. However, future studies with larger sample sizes could benefit from employing ANOVA or other inferential tests to determine whether the observed trends extend to a wider population.

7.11 Qualitative Findings and Discussion

We will now move on to presenting findings from the qualitative analysis, which was in the first stage carried out with an open mind and from an exploratory perspective; and subsequently, to assess whether participants' qualitative information could shed any light on the quantitative results and resulting questions highlighted in the previous section.

A detailed examination of imagery diaries and evaluation questionnaires provided a unique insight into participants' experiences during the intervention. The upcoming section will utilise these sources to present and discuss the key findings for each condition. As there were 35 participants in total, it will not be possible to present each and every participant's experience in detail; and so, overarching themes, recurring patterns, and noteworthy insights from participants' narratives will be included. Each section will also include a recap of the main findings from the quantitative data, as emphasis will be placed on elucidating any connections or discrepancies between participants' qualitative accounts and the quantitative results.

7.11.1 LSRT

Over the week of imagery practice, LSRT participants were instructed to use the vision that they had created in the workshop and to reflect on whether they could add anything further to this each day in order to make it more realistic; for example a sound, or a colour or a feeling. All 11 participants had used the layering technique and recorded details in their journals, with an average of 5 entries per journal (min: 4; max: 7).

It was hypothesised that through the progressive addition of sensory detail, participants would be able to create visions that were vivid, rich and detailed in their content. Analysis of journals revealed this to be true – on the whole, participants were able to use layering to generate detailed and elaborate visions. However, for several participants (nine in total), LSRT led to a *surplus* of detail in the vision – the result being that the resulting imagery became either difficult to control, or did not fully align with the desired outcome of the L2 vision. Consequently, only two participants were able to use LSRT to successfully visualise their Ideal L2 Self over the week of imagery practice, and we will begin by considering their experiences, before moving to the others in the group.

Successfully utilised LSRT to visualise Ideal L2 Self

Alicia and Angel were the two participants who utilised LSRT successfully to generate an Ideal L2 Self, and they were also the strongest visualisers in the group (based on their Psi-Q scores). Below, I will share the diaries of both participants, in their own words, alongside my own interpretations of stimulus, response and meaning propositions, which are in brackets. The analysis is also supplemented with Alicia and Angel's quantitative ratings, and their evaluations from the post-intervention questionnaire at T3.

Alicia

Alicia, a 21-year-old Chinese Presessional student, according to her Psi-Q, was the strongest visualiser in the LSRT group (participant 1 on Fig 29 with a T1 score of 197). Alicia's goal was to create an Ideal L2 Self that is able to understand classmates and lecturers. The setting of her visualisation is a seminar, in which she is a student, and during the week of imagery practice, she proceeded to add several layers to this initial image (see Figure 33 for journal entries in her own words). Interestingly, Alicia's visualisation journey began with a challenge, but she used the LSRT process of 'image, develop, reflect' to overcome this.

Day 1: (in my room at 9am)

'I am sitting in a seminar room with other students around me. The lecturer is standing in front of me and talking but I cannot hear him. He asked a question, and I can see that one of my classmates is responding, but I still cannot hear anything. I feel confused why I cannot

hear anyone talking and it makes me nervous.' (***Stimuli****:seminar; teacher and classmate talking;* ***Response****: Alicia cannot hear them talking* ***Meaning****:anxiety)*

Day 2: (in my room at 9am)

'I am in the seminar room, sitting near the window. The window is open and I hear the sound of birds. It is a sweet and happy sound, and I feel like my ears are not blocked anymore, as I can hear the birds tweeting very loudly! It makes me feel so warm and relaxed. I have a smile on my face. *(****Stimulus****: sound of birds;* ***Response****: can hear again;* ***Meaning****: happy and relaxed- moves away from anxiety)*

Day 3: (in my room at 11am)

'The lecturer is speaking in English again and this time I am looking at him closely. I can sense his tone and pace and hear some words, but I am not sure exactly what he is talking about. *(****Stimulus:*** *watching lecturer speaking;* ***Response****: Alicia becomes aware of tone and pace;* ***Meaning****: some sense of improvement from Day 1)*

Day 4: (in my room at 9am)

'Now the lecturer is speaking more clearly, and I start to recognise some words and phrases. They are related to the reading that I did yesterday. I feel good because I can start to understand what the lecturer is saying now and this gives me a sense of accomplishment.' (***Stimulus****: lecturer speaking clearly;* ***Response****: recognition of words and phrases* ***Meaning****: increases understanding leads to increased confidence)*

Day 5: (in my room at 10.30am)

'The student sitting opposite me on the table is talking to everybody. It is a group discussion. At first I cannot hear words but then I look at her mouth and the moving of her mouth slows down and I start to understand her main point.' (***Stimulus****: speaker's mouth slowing down;* ***Response:*** *increased understanding;* ***Meaning****: can now understand classmate as well as lecturer)*

Day 6: (in my room at 9am)

‘I can see the other students on my table, they are talking too, and I can see the movements they are making with their hands. It is much easier to understand what is going on and to know what they are discussing about now. (***Stimulus:*** *hand gestures;* ***Response:*** *increased understanding of topic* ***Meaning:*** *can follow the group discussion now)*

Day 7: (in my room at 11am)

‘The voices of my classmates are becoming louder and stronger. I can really understand most of what they are saying now. I slow down and listen to two of them speaking and I can hear a lot of the words. It really makes me feel I can understand now. *(****Stimulus:*** *louder voices;* ***Response****: Alicia focuses on voices of two classmates;* ***Meaning:*** *enhances confidence in listening ability)*

Figure 33 Imagery Diary Record (Alicia)

On Day 1, Alcia realises that she cannot hear her lecturer or her classmates, and this leads to a sense of confusion and anxiety. However, instead of shifting away from this image, we see that over the next few days she is able to develop her imagery in a reflective manner in order to deliberately target her auditory imagery. On Day 2, rather than include voices again, she decides to include the sound of birds, and this appears to be a pivotal moment, as it serves not only to unblock her ears, but also to divert attention away from her anxiety.

Once she is sufficiently relaxed, Alicia then redirects her focus towards reintegrating voices on Day 3. She begins with making inferences from the lecturer’s tone and pace on Day 3, visualising the slowing of the student's mouth on Day 5, noticing their gestures on Day 6 and, finally, their voices on Day 7. The way that she develops this image over the week is gradual and progressive, by adding one stimulus at a time. Her layers also contain detail of meaning propositions relating to how she feels e.g. confused (Day 1), warm and relaxed (Day 2), sense of accomplishment (Day 4).

The fact that Alicia is not only able to incorporate one relevant stimulus at a time but is also able to consciously control and manipulate her imagery, showcases her high imagery ability. She is able to zone in on a particular stimulus in order to improve imagery: for example, when she slows down and focuses on two classmates within a group discussion (“I

slow down and listen to two of them speaking"), or when she is able to make the movement of the classmate's mouth slow down ("At first I cannot hear words but then I look at her mouth and the moving of her mouth slows down and I start to understand her main point.") In her own words, she explains the intricacies of this process, demonstrating an increasing understanding of her own cognitive mechanisms:

> I find this exercise very useful in improving my visualisation. For me, the voice part is the most difficult. At the beginning, I didn't realise that my speaker has no voice. But with the help of layer analysis, I paid more attention to the voice and highlighted this specific part of my imagery. I suppose this exercise is a little difficult but practical to operate. It is very helpful. I felt happy when I reached my goal.
> *(Alicia's evaluation at T3)*

As a result, she succeeds in improving her auditory imagery and making her vision more realistic by moving closer to imagining an Ideal L2 Self that can better understand lecturers and classmates. However, her vision remains realistic, in the sense that she has not achieved a magical understanding overnight:

> Vividness improved. At the beginning, I can only see the seminar, but later on I can hear the speakers. Though I cannot always figure out exactly what they are talking about, I can feel the tone and pace when they talk.
> *(Alicia's evaluation at T3)*

This assessment corresponds with Alicia's quantitative ratings for vividness (T1:8 T2:9, T3:9) and ease (T1:6, T2:6, T3:9), which both increase. Alicia's motivation level also increases (T1:8, T2:9, T3:9), and she notes that there has been an impact on her behaviour, whereby she now tries to listen more carefully to people speaking English in daily life.

In terms of general imagery ability, Alicia's overall Psi-q score rose only by 1 point (197-198), and based on her experience, we can assume that this is due to a ceiling effect, as she does state that vividness improved, specifically in relation to hearing. However, surprisingly, her Psi-Q ratings provide no indication of sound being a weaker sense, or having improved at T3, as her rating for sound was 9 (out of a maximum of 10) at both T1 and T3. It appears that it is specifically imagining voices that Alicia found difficult, rather than sound in

itself. A key finding here therefore is that the Psi-Q is not a useful indicator of imagery ability related to the Ideal L2 Self, as based on this alone, we could not have known that Alicia found it difficult to imagine voices (in English).

Angel

Angel, a Greek Erasmus student, aged 20, is the second strongest visualiser in the group, according to her Psi-Q (Participant 2 on Chart 29 with a T1 score of 190). Angel's goal is to imagine herself as a successful English teacher. Her visualisation is set in a classroom, in which she is teaching English, and details from her imagery journal, in her own words, are in Figure 34. As before, the researcher's interpretations of stimulus, response and meaning propositions are in brackets.

Day 1: (in my room at 9pm)

'Myself in the middle of a lecture room, talking to my students. I am close to them, discussing, and they seem to be enjoying the class. I feel content, with a smile on my face.' (***Stimulus****:talking with students;* ***Response****: smiling and content;* ***Meaning****:self-validation of Ideal Teacher Self)*

Day 2: (in my room at 9pm)

'Me with my students in a lecture room once again. This time I focus on their reactions. Their faces are happy, full of satisfaction. Probably they like my sayings, and they understand what I am trying to teach them. I am happy that my students can understand me and it means that I am good at my job'. *(****Stimulus****: students' facial expressions;* ***Response****: happy;* ***Meaning****: self-validation of Ideal Teacher Self)*

Day 3: (in my room at 9pm)

'While having a discussion on various issues in English, some of the students ask questions. I am willing to answer, as they make me think they want to learn more. I feel happy and pleased. *(****Stimulus:*** *students' questions;* ***Response****: willing to answer;* ***Meaning****: further encouragement of Ideal Teacher Self)*

Day 4: (in my room at 9pm)

‘In the room once again, seeing myself lecturing and my students are listening to me. I focus on myself and the way I speak English; so fluently, properly, as if I were a native English speaker. My accent is amazing. This is definitely due to my studies all these years. I feel pleased and satisfied, and am looking forward to experiencing it! (***Stimulus****: own speaking;* ***Response****: pleased, excited;* ***Meaning****: positive expectancy of actualising Ideal L2 Self)*

Day 5: (in my room at 10pm)

In the class once again, this time I am asking my students not to hesitate to come and find me if they need my help for any issue - not just English. I feel happy and pleased. I consider myself not only a teacher, but mainly a human who has to take care and help others who need it. (***Stimulus****: inviting students to ask for help;* ***Response:*** *satisfied;* ***Meaning****: emergence of the Altruistic Self)*

Day 6: (in my room at 10pm)

My class comes to an end. Some of the students leave, some others come around me to ask for some help on personal issues. Of course, I am willing and happy to do it. Feel very happy and satisfied. (***Stimulus:*** *class ending and students asking for help;* ***Response:*** *happy to assist;* ***Meaning:*** *A continuation of yesterday’s Altruistic Self)*

Day 7: (in my room at 8pm)

I visualise myself leaving the classroom after I am done with the lecture and my students’ questions. I am heading to my office as I have more work to do. Feel pleased and satisfied. *(****Stimulus:*** *exiting classroom;* ***Response****: feeling satisfied;* ***Meaning:*** *Closure of the scene)*

Figure 34 Imagery Diary Record (Angel)

Like Alicia, Angel has also used LSRT by reflecting and developing her imagery in a systematic and structured way. Using the initial setting of teaching in a classroom, she proceeds to add several layers, building on the scenario of each previous day. On Day 1, she begins with a basic scene of herself talking to students; to which she adds students’ facial expressions and reactions the following day. On Day 3, she adds her students asking questions. The function of these initial layers seems to be to visualise an Ideal Teacher Self,

which she does successfully - and an accompanying sense of self-validation and satisfaction is evident ("I am good at my job"/ "…they make me think they want to learn more"). It is also notable that not only does she incorporate her own responses, but also her students' – "their faces are happy, full of satisfaction", "they seem to be enjoying the class". Throughout her journal, each entry also includes meaning propositions: we can see clearly how she feels and there is a strong sense of positive emotionality in her imagery throughout.

Although the setting of her imagery is the same, Angel incorporates new stimuli each day in order to move the focus on to a new element within the scene. For example, on Day 4, she moves away from the students on to her own speaking, and imagines her Ideal L2 Self ("my accent is amazing....as if I were a native English speaker"). On the next day, she then moves to imagining a scene in which she is helping students with their personal issues, thus creating a more altruistic self ("a human who has to take care and help others"). In this way, Angel uses layering to incorporate different elements relating to various domains of her Ideal L2 self:

> The scene was the same (lecture room) and every day I was adding a detail to it, e.g. feelings, students asking questions, focus on my English abilities etc).
> *(Angel's evaluation at T3*)

Despite her overall Psi-Q score remaining the same at T1 and T3, Angel's assessment at T3, clearly expresses the positive impact received from the LSRT intervention. She notes that her visualisation skills became more vivid and easier with practice and mentions that "in the last few days, I could visualise my goal more easily." This observation aligns with the heightened vividness and ease of her specific mental imagery, as evidenced by her increased ratings over the three time points (*vividness:* 8, 9, 9; *ease:* 7, 8, 9).

In this process, it appears that there has also been a significant impact on her metacognitive awareness related to her imagery ability:

> Actually, I was not aware of the fact that I can visualise things to such an extent. It improved my visualisation ability. I didn't know that I can do this.
> *(Angel's evaluation at T3*)

In her T3 evaluation, Angel highlights the emotional impact whilst visualising, and also after visualising:

- ‘Every day I was feeling happy and pleased. I remember a smile shaped on my face. But it only lasted during the visualisation.’

- ‘It affected me somehow, as last night, I dreamed of my sister announcing to my parents that she wants to become a university teacher.’
  (Angel’s evaluation at T3)

Angel’s motivation also increases (9,10,10), and her comments indicate her increased desire to achieve her goal:

- ‘My visualisation experience really motivated me a lot!’
- ‘I feel more motivated to achieve my goal’.
- ‘I see my goal closely and I look forward to experiencing it.’
- ‘Now I really want to achieve it’.

However, when asked about any intended impact on behaviour, no action is specified, other than to continue visualising – indicating that this may be an opportune time to draw up an action plan to mobilise the motivational energy that imagery has generated.

In summary, both Angel and Alicia, despite already being high ability visualisers, have benefited from LSRT. They have managed to utilise LSRT successfully to generate an Ideal L2 Self, demonstrating the effectiveness of this technique. If we recall, LSRT aims to include stimulus, response and meaning propositions in a step-by-step approach, enabling the visualiser to gradually build up to a desired image in a reflective manner. What is particularly apparent is that both have been able to utilise the process of ‘image, reflect and develop’ independently, without the assistance of an imagery practitioner. Both have also gained metacognitive knowledge about their imagery: Angel that she is able to visualise so well, and Alicia that she needs to work on her auditory visualisation of speaking.

In terms of general imagery ability, Alicia’s overall Psi-q score rose only by 1 point (197-198), and Angel did not experience any change from T1 to T3 (190-190), indicating perhaps that as they were already strong visualisers, they had not benefited much from an

imagery enhancing technique. Both participants' specific imagery ratings for vividness also did not indicate any increase at T3 (8,8,9). Their qualitative data however revealed otherwise, showing that they had received much benefit from LSRT practice, and were able to create a stronger, more vivid and motivational vision of their Ideal L2 Self.

The Experiences of the Other Visualisers

As highlighted earlier, imagery journals and evaluations revealed that other LSRT participants were not as successful at maintaining a vision of their Ideal L2 Self over the week. The main reason for this appeared to be an excess of detail in the vision, which led to either:

1) the incorporation of irrelevant and distracting stimuli into L2 self scenarios *(for 6 participants)*
   OR
2) difficulty in integrating the detail into an overall meaningful scenario *(for 3 participants)*

Interestingly, the latter category included not only two weak visualisers but also one of the stronger visualisers in the group, and we will begin by considering their experiences.

Excess detail became difficult to integrate into an overall scenario

Miriam and Wendy were participants 11 and 9 in Chart 29 based on their Psi-Q score and therefore could be classed as weaker visualisers. Both experienced a decline in their general imagery ability (Psi-Q score) at T3. This is a significant finding, as LSRT is purported to help people who have weaker imagery skills, by enabling them to build up their image reflectively and gradually (Williams *et al.,* 2013). Why were these two participants not able to benefit? This warrants further investigation, and we will consider the cases of both of these participants first, before moving to the stronger visualiser in this category.

Miriam

Miriam, a 20-year-old French Erasmus student, according to her Psi-Q, is the weakest visualiser in the LSRT group (participant 11 on Chart 29; with a T1 score of 112 which fell to 105 at T3). Miriam's goal is to imagine an Ideal L2 Self that speaks fluently and confidently in English. Her journal entries, in her own words, are presented in Figure 35, accompanied by

my interpretations of stimulus, response and meaning propositions. Note that not all journal entries contain all three of these propositions as these were not identified as being present in the vision by the researcher.

Day 1: (10am in a university room)

'I am presenting a work on literature in front of teachers who were to decide if I would become an English teacher. I was holding papers in my hand and talking fluently and confidently. I could see a bald man amongst the teachers, but I don't know what I was talking about.' *(**Stimuli**: presenting fluently to teachers; holding papers; a man in the audience **Meaning**: speaking confidently but unsure of speech content)*

Day 2: (8am in bedroom)

'I am in front of teachers holding papers talking in English. I add many things to my image. I can see my hairstyle, the colour of my clothes, my shoes, the shape and colours of my earrings, the way other people in the room look, the outside of the building. but I can't visualise a big picture of it but disparate bits of images.'

*(**Stimuli**: many, relating to own appearance, other people and the building)*

Day 3: (9.40pm in living room)

'Same image as before.'

Day 4: (7am in bedroom)

'As before but in a lighted room.' *(**Stimuli**: same as before but with light).*

Figure 35 Imagery Journal Record (Miriam)

It is immediately evident that Miriam has not engaged with this process as the stronger visualisers did, from the fact that she has only completed the journal until Day 4, and also that her entries are brief on Day 3 and 4.

However, on Day 1, Miriam is able to create an image of herself talking fluently and confidently in front of teachers, which would appear to be a good start. On Day 2, she attempts to continue this scene, but adds multiple stimuli to the same setting: "my hairstyle, the colour of my clothes, my shoes, the shape and colours of my earrings, the way other

people in the room look, the outside of the building". This was contrary to instructions in the LSRT workshop which had instructed participants to add one layer, in the form of one detail, at a time. The resulting effect is that she is unable to combine all of these into an overall scene, and Miriam's evaluation at T3 reveals that she is aware of the cause of this issue:

> My problem is that I can add too many things to my image. When adding more details I can't see a big picture of it but rather pieces of images. *(Miriam's evaluation at T3)*

Therefore, the problem is not that Miriam is unable to generate images; rather it is that, when using LSRT, the addition of too many stimuli mean that she is unable to form a coherent scene. Her efforts to visualise only result in the addition of more stimuli on Day 4 ('a lighted room'), which has the effect of decreased vividness and frustration:

> I can't see the picture but rather pieces of images. I was sad, as the more I add things the more unreal it seems. This was an exercise I didn't understand. *(Miriam's evaluation at T3)*.

It is not clear why Miriam added so many stimuli on Day 2, but it would be advisable for her to add and focus on one detail at a time. In her journal entry on Day 1, she visualises herself speaking fluently, but adds that "I don't know what I was talking about". Therefore, on Day 2, the next layer could perhaps have incorporated detail of language. It would also be advisable to incorporate more emotional propositions. Her journal entry on Day 1 shows that although she is talking fluently, her imagery is devoid of any meaning. Does she feel happy because she is talking fluently? Does she feel under pressure as her audience is deciding whether she will become an English teacher? An imagery practitioner would encourage Miriam to add feelings to her scene to make it more realistic.

Another indication that Miriam found it difficult to engage with this activity was reflected in her quantitative ratings, which did not match with her qualitative evaluations; for example, she stated that visualising was not easy, but rated ease at T1:10, T2:7, T3:9. Her vividness rating remained at 7 from T2 to T3, and although she commented in her evaluation that the activity had no effect on her motivation, her numerical ratings presented differently (T1:7, T2:8, T3:9). It seemed that she was aware of this discrepancy, as she reflected that she had indeed found it difficult to rate imagery numerically:

I was not sure which box to tick as it was difficult to think about images in numbers.

(Miriam's evaluation at T3)

However, Miriam's general imagery ability did reflect a decrease during the intervention (*Psi-Q* T1:112, T3:105), which was a more accurate reflection of her experience.

Wendy

Wendy is the third weakest visualiser in the LSRT group (participant 9 on Chart 29 with a T1 score of 140; which fell to 124 at T3). A 20-year-old Chinese Presessional student, her L2 goal is to use vocabulary more naturally when speaking. The scene she chooses to create is as a student in a seminar room. However, like Miriam, she too found that LSRT resulted in the addition of too many stimuli into her vision (see Figure 36 for journal entries).

Day 1: (6pm in bedroom)

'Talking in front of class about the content of module. My teacher Will is sitting at the front looking at me. I am standing next to the computer.' *(**Stimuli**: talking to class, standing next to computer, teacher)*

Day 2: (8am in bedroom)

'Similar to Day 1. Now after I talk, the teacher makes a few comments on my talk while I am looking at him and listening carefully. It seems real. It feels more vivid than dreams.' *(**Stimuli**: teacher's comments; **Response**: looking and listening; **Meaning**: feels real).*

Day 3: (8am in bedroom)

'Continue the same scene as Day 2, but with more details such as the temperature of the classroom, the quietness, the feel of the plastic table. I feel sleepy.' *(**Stimuli**: temperature, quietness, plastic table; **Response/Meaning**: sleepy).*

Day 4: (7am in bedroom)

'As before but with more details. The layout of the classroom, what my classmates look like, the smell of the plastic tables. Feel sleepy.' *(**Stimuli**: classroom layout, classmates' faces, smell of tables; **Response/Meaning**: sleepy).*

Day 5: (8am in bedroom)

'Same as before, but I add sound from the outside, birds chirping, trees flapping, people walking in the corridor. Feel sleepy.' *(**Stimuli**: sounds of birds and trees and people; **Response/Meaning**: sleepy).*

Figure 36 Entries from Wendy's Imagery Journal

On Days 1 and 2, Wendy is able to imagine a realistic scene in which she is talking in front of her teacher. Although her journal entries are not detailed, it seems that she has the capacity to create vivid imagery, as on Day 2 she states that her imagery of talking with her teacher feels real and "more vivid than dreams".

However, we can see that Wendy, like Miriam, starts to add too many stimuli on Day 3 and this continues until Day 5. Whereas Miriam had included some details of her appearance, Wendy includes external details of her surroundings, relating to the classroom and stimuli from outdoors: "the feel of the plastic table, the layout of the classroom, what my classmates look like, the smell of the plastic tables, birds chirping, trees flapping, people walking in the corridor". This addition of external stimuli feels mechanical, and there is no detail about herself in the scene.

Wendy's own reflection at T3 is that she did not know which details to add. She has not been able to create her Ideal L2 Self, as there is no speaking after Day 2, and despite creating multisensory imagery of items around her, her imagery contains no response and meaning propositions, other than to feel sleepy. Notably, even on Days 1 and 2, there are no details of how she feels. An imagery practitioner would encourage Wendy to reflect on her imagery on Day 2, and instead of adding more external stimuli about the classroom, which appear to be unhelpful at this stage, to focus on developing her interaction with the teacher.

Wendy's quantitative ratings for ease and motivation remain constant at T1:6, T2:6, T3:6, and vividness appears to increase: T1:7, T2:8, T3:9. However, her Psi-Q rating declines from 140 -124. Wendy's qualitative evaluation appears to sum up the main issue that she had, which was an excess of stimuli and lack of emotional propositions:

> I added a lot of things to make it feel real, but the problem is that it became more unreal! I could not feel myself in the scene.
> *(Wendy's evaluation at T3)*

To summarise so far, the experiences of two of the weakest visualisers in the group (Miriam and Wendy) demonstrate that both of these participants were able to generate vivid imagery of discrete items using LSRT, but were unable to incorporate them into a meaningful scene. This appeared to be due to an excess of stimuli, and in fact both participants noted that they had added "too many things" to their image. The more realistic they tried to make the image, the more stimuli they added, and this had a counter effect. This indicated that either they had either not clearly understood the activity; or, unlike the two strong visualisers (Alicia and Angel), were not able to independently self-reflect on which propositions they should meaningfully add.

From a practical perspective, this shows that weaker visualisers will need considerable help and guidance from a practitioner when using LSRT. However, it shows that even weaker visualisers can visualise vividly, as both were able to create a relevant scene initially; suggesting that the issue may lie more in a lack of adequate reflection when adding new layers.

From a neurological standpoint, the issue of adding too many stimuli points to challenges in controlling imagery rather than generating it. This aligns with research on working memory (WM), which temporarily stores and manipulates visual information. Studies, such as those by Keogh and Pearson (2017), indicate that increasing the complexity of mental images can degrade their vividness and clarity due to WM capacity limits- with decreases in strength, precision and vividness occurring with an increase in content. Recently, Ceja & Franconeri (2023) tested more specifically the limits of mental imagery by asking participants to imagine between 1-4 coloured items and found that more items resulted in a degradation of vividness. If we return to Miriam's visualisation, we see that on Day 2, she had added 6 different stimuli to her image, which included colours and shape:

> my hairstyle, the colour of my clothes, my shoes, the shape and colours of my earrings, the way other people in the room look, the outside of the building.
> *(extract from Miriam's journal)*

It is perhaps not surprising then that Miriam subsequently noted that "I can't visualise a big picture of it but disparate bits of images". It is likely that the overload of stimuli interfered with the ability of her working memory to process this information and generate a complete mental picture; for it is the working memory that enables the amalgamation of multiple memory-based representations (Baddeley, 2003). Wendy likely experienced a similar issue with capacity of WM as she had also added numerous multisensory stimuli:

> the temperature of the classroom, the quietness, the feel of the plastic table. layout of the classroom, what my classmates look like, the smell of the plastic tables. birds chirping, trees flapping, people walking in the corridor.
> *(extract from Wendy's journal)*

Elizabeth

One other participant (Elizabeth) in the LSRT group experienced the same difficulty of being unable to visualise a holistic scenario. However, interestingly, this participant was one with higher imagery ability, based on her Psi-Q (participant 4 on Chart 29).

Elizabeth, a 22-year-old Italian Erasmus student, wishes to speak English more fluently and confidently, and creates an Ideal L2 Self that is travelling, and speaking to local people in English (details of her imagery journal are in Figure 37).

Day 1: (2pm in bedroom)

'I am going on a trip and speaking with local people in English. They are kind to me. I describe to them what are my programmes for the day. I feel a cool breeze and see the green grass. I feel very calm, like I wouldn't ask for anything else.' *(**Stimuli**: talking to people, breeze; **Meaning**: calm and content)*

Day 2: (5pm in bedroom)

'Same scenario, but a more detailed landscape. Trees moving from the wind and birds singing. I am speaking in third person with the local speakers. The sunlight is too bright, it seems to be midday. I can see the texture of the clothes of the local people, I can tell the material by which they are made. I feel like it is very realistic.' *(**Stimuli**: trees, bird sound, sunlight, details of clothes; speaking **Meaning**: feels more real).*

Day 3: (10am in bedroom)

'I tried to visualise the same scenario but something has changed. I am in first person this time and gesticulating while speaking. This time I feel more of myself is involved emotionally in the situation. My palms were sweating and I was not sure what to say.' (***Stimuli****: own speaking and gestures;* ***Response****: sweaty palms;* ***Meaning****: emotional and possibly nervous).*

Day 4: (10pm on a coach returning from a trip)

'I tried to visualise the same scenario but I felt like in a bubble. People were speaking but I couldn't distinguish the words. Still in 1st person. I felt numb and blank.' *(****Stimuli****: other people speaking;* ***Response****: can not understand;* ***Meaning:*** *a sense of strangeness; not sure why she can't hear).*

Day 5: (9pm in bedroom)

'I tried, but didn't see anything. I decided to recreate the same situation, but felt like I was forcing myself.'

Day 6: (3pm in bedroom)

'No more bubble. Just the same scenario, but back in 3rd person. I feel the wind on my skin and through my hair. I feel confused, but still happy.' (***Stimuli:*** feeling of breeze, original stimuli from Day 1; ***Meaning:*** happy that she can visualise again, though still confused)

Figure 37 Imagery Journal Record (Elizabeth)

Elizabeth's journal starts with positive and calm imagery of a conversation with local people whilst on a trip. She vividly pictures her surroundings: blue sky, summer afternoon, green grass, feeling the wind. On Day 2, she adds further detail, referring to "a more detailed landscape"; the material and texture of the other speakers' clothes; the sunlight as "too bright", and the vision as "very realistic". Is this an indication that the imagery has almost become too vivid for her?

On Day 3 she can no longer visualise the same scenario, and thus begins a struggle to visualise over the subsequent days. Her inability to visualise her initial scenario again, or

indeed, anything at all on Days 5 and 6, is strange given that she was a strong visualiser; however, her reflections at T3 shed light on her specific difficulties:

> It was easier to visualise details rather than the actual scenario of me speaking English, but I was absorbed by details. I kept visualising details and sensations even when I didn't want to. New details came to my mind, and in many cases, they appeared without thinking about them: afterwards they stuck in my mind and I had to force myself not to think about them. It was strange.
> *(Elizabeth's evaluation at T3)*

Elizabeth notes a problem with the details that spontaneously, and intrusively, came to her mind, suggesting a challenge in controlling the flow of thoughts. She kept visualising specific details rather than the overall scenario, and it seems that these details interfered with her ability to maintain focus on her Ideal L2 Self. As with the two weaker visualisers, this also seems to indicate an issue of controllability, rather than generation of images. It is the visual cortex in which images are formed, and research (Keogh *et al.,* 2016) has shown that the visual cortex can become overloaded (or too 'excitable' or 'noisy', in neurological terms) with stimuli, which are competing for attention. In fact, those who have a smaller visual cortex experience less noise and excitability and therefore clearer imagery (Bergmann *et al*., 2015). Although we cannot see into Elizabeth's mind, it does seem possible that she may have experienced an issue of an excitable visual cortex, given the extremely vivid and detailed imagery she created on Day 2.

Despite being the one of the stronger visualisers in the group, Elizabeth's Psi-Q score fell from T1 to T3 (156 to 152), and her vividness also reduced from T2 to T3 (8 to 7). This suggests that LSRT may not have been the most suitable approach for a rich imagination such as Elizabeth's, as it resulted in the production of unexpected and unwanted elements during the visualisation process. It also seemed that visualising in first person did not help her. On Day 3, she noted that "something has changed", highlighting a transition to first person visualising. This appears to induce emotional involvement in the form of nervousness and anxiety and suddenly she is not sure what to say. This confusion continues until Day 6, when she returns to visualising in third person, and is able to recreate some imagery again.

Nevertheless, Elizabeth expressed an increase in understanding of her own imagery ability, highlighting in particular that this was a very introspective and useful exercise which she enjoyed:

> This was such a powerful experience that I really enjoyed. I would like to dedicate more time for myself and self-reflection. I found this exercise curious, because of the impact it had on my mind. But I noticed how my mood is involved in the visualisation.
> *(Elizabeth's evaluation at T3)*

She also stated that she would like to continue to improve her skill of visualising, and that this was "a really powerful and introspective experience that seems like meditation about my goals and myself.": demonstrating that despite her struggle with LSRT, she was not deterred from visualising itself.

Summary

So, what have we learned so far? The two strongest visualisers in the group were able to generate a vision of their Ideal L2 Self, incorporating one relevant layer at a time. Both were able to self-reflect on which stimuli to add, and despite the fact that one of these participants (Alicia) was presented with a challenge in the form of hearing voices, she was able to target and overcome this independently. Their visions also contained meaning propositions and remained focused on their desired L2 goal throughout.

Interestingly, another strong visualiser was unable to do the same, and encountered the same issue as the two weaker visualisers, who found themselves visualising an excess of stimuli, largely devoid of meaning. The finding with regard to the weaker visualisers is significant, as LSRT is purported to help people who have weaker imagery skills, by enabling them to build up their image reflectively and gradually (Williams *et al.,* 2013). However, in this study, it led to the visualising of too many stimuli which were difficult to control and incorporate into a cohesive and realistic scenario.

Reflecting more broadly on the vision of the Ideal L2 Self, this provides an initial indication that detail and elaborateness are not the only ingredients necessary for the

generation of an Ideal L2 Self, and this will be discussed further in the next section, in which we will consider those who encountered a different challenge caused by excess detail.

Irrelevant stimuli lead to distraction

Analysis of the LSRT group showed that 6 participants had incorporated *irrelevant and distracting stimuli* into their L2 self scenarios, and were unable to maintain a vision of their Ideal L2 Self. It is not possible to detail all of these cases here, and so we will examine in detail the cases of two of these participants: Marylou, one of the weaker visualisers; and Vicky, who was able to maintain a somewhat relevant vision, but whose experience still demonstrates the problems caused by unnecessary detail.

Marylou

Marylou was the second weakest visualiser in the group (Participant 10 on Chart 29 with a Psi-Q score of 115 at T1). However, in contrast to the two weak visualisers considered earlier, her general imagery ability improved (Psi-Q T3:135). Nevertheless, she too, was not able to successfully visualise her L2 self over the course of the intervention. Her journal entries are documented in Figure 37.

Day 1: (11am in bedroom)

'I was with some English friends. Speaking English without asking if they understood me. I felt relaxed, 'in harmony' with myself. It was sunny, a bit warm and I could feel better inside.' *(**Stimuli**:friends, sunny, warm; **Response:**speaking English; **Meaning**: feels good (to be understood?))*

Day 2: (8am in bedroom)

'I am walking on the beach in France. I can smell the salted sea. It felt real.'
*(**Stimuli**:beach, smell of sea, walking) **Meaning**: feels real).*

Day 3: (8am in bedroom)

'I can still smell the salty sea, but now I also feel the refreshing breeze, and as I am walking, I feel the sensation of sand under my toes. I can hear the loud sound of seagulls. Everything feels very familiar'. *(**Stimuli**: smell of sea, feel of breeze and sand, sound of birds; **Meaning:** familiarity).*

Day 4: (7am in bedroom)

'I am lying on the sand, looking at the sea and observing the waves. My friends are playing volleyball next to me.'

*(**Stimuli**: sand, friends playing, waves in the sea)*

Figure 37 Entries from Marylou's Imagery Journal

Immediately it is evident that Marylou seems more at ease with her visualising than Wendy and Miriam. She is able to create imagery over the 4 days that is connected and progressive. Each day, she adds more stimuli, but does not struggle to integrate these into the overall scene. Her journal entries depict a rich sensory experience, likely triggered by memories ("Everything feels very familiar").

Additionally, her entries also reference some emotional propositions relating to how she feels (e.g. "I felt relaxed"/ "Everything feels very familiar"/ "I feel better inside"). It may be these emotional components and the creation of coherent scenes that differentiate her experience from the other two weak visualisers, and lead to an improved rating for her general imagery ability score on the Psi-Q. Marylou's comments show that she enjoyed the visualising experience: "I loved this activity because it made me feel so happy", and her quantitative ratings also reflect this: Vividness: 8,9,8; Ease: 8,8,8; Motivation: 8,9,9.

However, although Marylou does not appear to struggle with the LSRT process in itself, it is significant that apart from on Day 1, there is no reference to her L2 goal, which was to speak English more confidently and fluently. The English friends and the speaking that were present on Day 1 are eliminated from her imagery on Day 2, and the focus shifts on to a beach in France. The content of the imagery itself thereafter does not appear relevant to her intended outcome, and it seems that Marylou is using imagery to relax and create a sense of comfort by visualising a familiar scene from home. This focus on relaxation may have been triggered on Day 1, when, although she created a scene of speaking fluently, she mentioned that she felt "relaxed and in harmony with myself". Subsequently, the sensory details of the salty sea, the sound of waves, the refreshing breeze, and the sensation of sand under her toes seem to distract from language practice and led to the creation of what appeared to be relaxational imagery.

Marylou's case raises an important issue related to the relevance of imagery content. Although she has been able to create a vivid and multisensory vision using LSRT, she has been unable to remain 'on-task' and keep the vision relevant to her L2 goal after Day 1.

Vicky

Vicky is a 20-year-old Foundation student from China (Psi-Q 157-190). Her Ideal L2 Self has lots of international friends, and during the first three days of imagery practice, she successfully uses LSRT to imagine an Ideal L2 Self that can speak confidently to others (see Figure 38 for her diary entries).

Day 1: (in bed at 7.30am)

'A group of foreign friends from different countries are having free chat in English in a coffee shop and I am one of the members. It's a sunny day and it's warm. We are sitting near a French window, talking about politics.' (***Stimuli****: friends, location, temperature;* ***Response****: talking)*

Day 2: (in bedroom at 8am)

'Same setting as the first day. People around me are smiling and nodding, making responses constantly, for example 'I agree'. I'm making jokes and making gestures. I feel happy and proud.' (***Stimuli****: others' facial expressions and positive verbal responses;* ***Response****: jokes and gestures;* ***Meaning****: self-confidence increases)*.

Day 3: (in Starbucks at 2pm)

'Kind of the same as the past two days. I'm wearing a shirt with black and white stripes and I'm having a cup of mocha. This time I'm talking about slang and making native jokes. I feel like finally I'm able to speak like a native speaker.' *(****Stimuli****: details of clothing and coffee;* ***Response****: speaking fluently;* ***Meaning****: has reached optimal ideal L2 self).*

Day 4: (in bedroom at 6pm)

'I'm at my friend Rachel's house. We are baking together. Rachel is asking me to pass her powder and telling me about special desserts in Britain, and I'm talking about traditional snacks in China. The sunshine is bright and we can see a beautiful garden with a tree

through the window. It makes me want to eat snacks now. I feel happy that I can tell people about Chinese food, but sometimes it is disappointing when I can't make up the conversation.'*(**Stimuli**: friend's home, baking, weather, garden; **Response**: wants to eat; happy to talk **Meaning**: focus on food, struggle to produce language).*

Day 5: (in library at 2.20pm)

'I can see the inside decoration of the kitchen and the oven is on. We are making chocolate muffins and I'm adding chocolate chips. I can smell the chocolate. I'm talking about how deep I like chocolate and she is telling me the history of chocolate factory in Britain. Some other friends invite me to their house and I feel warm about this. This makes me more motivated to learn English and make good friends.' *(**Stimuli**: decor of kitchen, baking, chocolate, talking, other friends; **Response**: feels happy about being invited; **Meaning**: positive socio-cultural interactions have positive impact on L2 motivation).*

Day 6: (in classroom at 3.25pm)

'Basically the same as the past two days. But this time there are four more friends. One is from Korea. One is from Spain and the other two are French. We are talking about different cultures in each country and I invite them to visit China sometime. I feel that it's exciting to make friends from different country but I am not sure what to say. I want to eat chocolate muffins so bad.' *(**Stimuli**: more friends, talking; **Response**: invites friends to China, wants to eat; **Meaning**: more socio-cultural interactions lead to excitement, but still struggling to produce language).*

Day 7: (in bedroom at 9.30am)

'I am taking the chocolate muffin out of the oven and the others are standing by watching. The smell is so good and there is a squirrel jumping across the garden. The oven is hot and I wear red oven gloves. The muffins taste so good with red tea and it's a really nice sunny afternoon. I feel satisfied and happy with tasty food. I don't want to leave her house.' *(**Stimuli**: details of kitchen and chocolate muffin; squirrel in garden; talking; **Response**: satisfied with food; **Meaning**: contented and relaxed).*

Figure 38 Imagery Journal Record (Vicky)

Looking at Vicky's diary, we can see there are two distinct settings over the week. In the initial three days, she is in a coffee shop, engaging with international friends. By Day 3, she has seemingly created an Ideal L2 self, adept at speaking like a native. However, on Day 4 when Vicky transitions from the cafe to a friend's kitchen, a shift occurs- now, the focus on verbal expression lessens, and a slight sense of discomfort arises when envisioning conversation content ("sometimes it is disappointing when I can't make up the conversation," "I am not sure what to say"). This contrasts with her earlier creation of an Ideal L2 Self on Day 3, which was communicating effortlessly and was proficient in slang and native-like humour. The question thus arises: why did this shift occur?

After Day 4, following the alteration in setting, Vicky's journal entries become more elaborate, as compared to her earlier entries. The details of these entries reveal an emphasis on the experience of baking chocolate muffins, and the accompanying sensory elements such as smell, taste, and the kinaesthetic element of the cooking process. Additional details include vivid stimuli from Vicky's surroundings, including the kitchen, garden, and weather. Vicky's own evaluation suggests that she has in fact added *too much* detail that has effectively detracted from her L2 Self:

> I feel it's difficult to focus on your main point when you add some details or too many details……too much details may distract me.
> *(Vicky's Evaluation at T3)*

The shift from a coffee shop to a kitchen might also involve a change in the conversational context, and Vicky may find it more challenging to come up with conversation topics or participate in discussions related to cooking or domestic settings. There is a sense that Day 3 was the point at which Vicky should have stopped adding more detail. An imagery practitioner would at this point encourage her to pause, reflect, and focus on elaborating one detail at a time, in particular the content of her speech, and perhaps by including more meaning propositions in the first three days (e.g. feelings of self-confidence and pride in her speaking ability) in order to further increase the emotional potency of her images. Unlike the two strongest visualisers, Vicky was not able to carry out this reflection on her own, and instead continued with developing a scene in which her Ideal L2 Self became slightly lost in the detail.

Nevertheless, her imagery maintains positive socio-cultural interactions, and there is a sense of motivation in her narrative. Vicky is successful at increasing her imagery ability, and this is reflected in her specific imagery ability scores over T1, T2 and T3 {vividness (7,9,9) and ease (8,9,9)}. As Vicky explains:

> I made progress in combining different senses together and dealing with details. This improved my imagination and sometimes it can be so realistic that I feel I'm experiencing it. Visualising facial expressions helps a lot to make the picture real. *(Vicky's Evaluation at T3)*

All of her ratings also increase in the Psi-Q (157-190), with her overall score increasing from T1 to T3. This may perhaps be because her imagery journal contained very vivid details of cooking, smells and scenery (e.g. 'squirrel jumping in garden'. 'red oven gloves', 'smell is so good'), and therefore she had practised more general imagery rather than specific L2 imagery.

There has also been a positive impact on motivation (T1:8, T2:10, T3:10) and Vicky says that "the good feeling in my imagination makes me want to achieve the goal as soon as possible", highlighting the pull of the possible self through its emotional function. In terms of intended behaviour, she says: "I think I will try and create the same scenes in real life and help myself achieve that" and she notes that as a result of this practice, "I imitate myself in the imagination, and talk more freely with friends in daily life". Clearly, LSRT has been successful in this case at improving imagery ability and motivation, but also in impacting actual behaviour. A little more reflection on Day 3 may have enabled her to continue to develop her imagery more effectively by adding detail specific to her language learning goal of speaking more fluently.

A summary of other participants who incorporated distracting stimuli

Appendix G contains a summary of the other participants' journal entries, who appeared to lose focus on their L2 goal over the week *(Sophia, Maria, Jerry, and Andrea*). It also highlights the transitional point at which each of these participants started to experience a shift towards distracting stimuli. It was noted that all of these participants used layering to create vivid and rich visions over the week, and we observe that they initially do create an Ideal L2 Self, commensurate with their L2 goal. However, around Day 3 or 4, their focus

changed, and the Ideal L2 Self became less prominent as other details emerged.

For Sophia, these details were related to music and dancing at a party on Day 3, triggered by a celebratory mood after passing her dissertation. For Maria, there was a shift of focus on Day 4 to her physical looks and self-esteem, distracting from her goal of speaking to native speakers and instead focusing on a glamorous self. For Andrea and Jenny, more significantly, these details led to visions incorporating negative meaning propositions. Andrea initially imagined being in a classroom with students listening to her, but on Day 4, when she added the whole class chatting, the noise took over, and she seemed to lose control, resulting in Andrea giving up trying to speak again.

As Nordin and Cumming (2005) explain, individuals who lack control over their mental images may inadvertently allow distressing emotions and unfavourable outcomes into their imagery. This also appears to be the case for Jenny, for whom layering led to the addition of detail which was detrimental to her Ideal L2 Self: specifically, a student challenging her opinion; and the addition of more external stimuli on later days, such as vivid details of the confrontational student, and of a messy desk only serve to amplify the negative connotations of her imagery.

It seems that additional layers, particularly after Day 3 or 4, resulted in inclusion of content that was inappropriate or unhelpful for the outcome. Holmes & Collins (2002) suggest that the outcomes of imagery use may be blunted, or even detrimental to performance, if the imagery content selected is inappropriate to the situation; and it is notable that 3 out of 4 of these participants reported a decline in the vividness of their L2 self at T3. This confirms that, as noted earlier, detail and vividness are not the only ingredients necessary for the generation of an impactful and motivational Ideal L2 Self. If the imagery generated is not relevant, or is inappropriate, despite being vivid and elaborate, it will not achieve the desired function: in this case, motivation.

Summary of LSRT findings

Qualitative data has shown that participants were on the whole able to use LSRT to add more detail into their imagery during independent practice. However, a detailed examination of participants' journals revealed that for the majority, adding layers beyond Day 3, resulted in an overload of stimuli into the vision. As a result, six participants became distracted and were

unable to retain focus on their Ideal L2 Self; while for three participants, excess stimuli resulted in an inability to merge this information into a holistic scene. In particular, struggles with maintaining language production and adding meaningful details beyond external stimuli like the environment became a challenge. As a result, despite being elaborate, the vision that was generated did not necessarily align with the desired outcome of the Ideal L2 Self.

Qualitative findings therefore indicate that the optimal number of layers when using LSRT is 2 or 3, and this may in fact be supported by the quantitative results, which showed that mean vividness of the Ideal L2 Self across the group decreased slightly after one week of layering (T3).

However, these findings do not point to a flaw with LSRT itself. Participants in the LSRT group were instructed to reflect every day over a week on what they could add to their imagery to help create a more vivid image of their Ideal L2 Self. Whilst only two participants with higher imagery ability were able to maintain over the whole intervention, most participants were able to create and alter their content successfully until Day 3 or Day 4 of the intervention. It was subsequent to this, that the addition of layers began to lead to the inclusion of irrelevant, or surplus, detail, which detracted away from the Ideal L2 Self, or led to the addition of detail that was difficult to control and integrate into an overall scenario. It was notable that the only two participants who were able to visualise their Ideal L2 Self successfully throughout the week had incorporated only one new stimulus at a time. Consequently, their imagery was controlled, building upon the scenario from the preceding day, and this approach avoided the introduction of excess or irrelevant propositions into their visions. Controlling the number of layers and avoiding distraction is therefore crucial for the success of LSRT in achieving language learning goals.

This would point to the fact that in order to be used more effectively, LSRT requires an imagery guide, or at the very least, clearer instructions on the number of layers to be added; for it is not simply the process of adding detail that is important: reflection is also essential in order to assess the impact of newly generated stimuli on the overall effectiveness of the visualisation. This was the case particularly for weaker visualisers, who, in this study, were not able to use LSRT well independently. In fact, in many cases, LSRT led to the addition of irrelevant stimuli, as participants kept adding to their image. Certainly, if this study were to be repeated, instructions would be more explicit to inform participants that they

only needed to add more layers if they felt it was necessary, and to focus their reflection on how they could improve their image to bring it more in line with their desired goal; and that this reflection could well include the *reduction* of stimuli from their previous image.

The addition of more emotional propositions would also be encouraged, as it was evident that for those participants who added excess detail, this was in the form of stimuli. This may provide an indication of why general imagery ability had not improved for LSRT participants across the emotional feeling modality. Incorporating emotional propositions is a central tenet of LSRT, in order to create a sense of personal meaning, and engagement with the imagery at a deeper level.

Nevertheless, LSRT's ability to enable learners to generate vivid and elaborate details is a strength that can contribute to a richer visualisation experience. Mean results from the specific imagery ratings of participants showed that LSRT was effective in enhancing both motivation towards and ease of imagining the Ideal L2 Self throughout the intervention (Fig 26), and participants' comments showed a sense of enjoyment, as well as an improvement in knowledge about their own imagery skills. If used carefully, LSRT is an approach that facilitates the addition of details to imagery, contributing to the creation of a more vivid and elaborate vision. The challenge lies in managing and directing this vividness to align with the intended scenarios, avoiding distraction or overwhelming complexity to maintain a balance between details and the overall scenario.

7.11.2 Written Scripts

WS participants were instructed to write an imagery script in which they imagined achieving their L2 goal. They were asked to elaborate this with details of what they were doing, thinking, and feeling; as well as details of the environment around them. They were provided with a template on which to write their script, and this began with some instructions for breathing exercises to encourage relaxation.

All 13 WS participants had written an imagery script, and recorded details in their journals over the week, with an average of 5 entries per journal (min: 4; max: 7). A detailed examination of journal entries was carried out, and it was immediately evident that participants had not visualised the same scenario each day; rather, their imagery comprised

new and additional details, with some participants varying the scenes on a day-to-day basis. This presented an interesting and unexpected finding- that the majority of the Written group were in fact independently using layering to develop their imagery!

A further interesting finding was that the imagery of 8 participants was not based on their script at all; and that for 6 of these 8 participants, there was little, or no L2 related content in their visions. Therefore, almost half of the WS group had not visualised their Ideal L2 Self (see Table 9 for an overview of the whole WS group).

Script not used and little or no L2 Self in vision (n=6)	**Script not used but visualised L2 Self (n=2)**	**Imagery based on script and visualised L2 self (n=5)**
Olivia	Li	Polly
Razer	May	Katy
Seven		Rachel
Rebecca		Lily
Irene		Mashal
Wangshuo		

Table 9 Participants use of their script in WS group

Why was it that 6 participants had not used their script, nor visualised their L2 self, despite producing an Ideal L2 Self script in the workshop? Could this explain why WS had displayed the poorest quantitative results at T3? Examining the scripts themselves yielded no clear insights, as all participants had submitted relevant scripts, albeit with variations in length and quality. Further, no patterns emerged with regard to stronger or weaker visualisers, as all had improved their general imagery ability (see Figure 27 for Psi-Q scores). The next section will provide more insight into the content of what these participants visualised.

Script not used and little or no L2 Self in vision

6 participants had deviated from their script and created imagery that was not aligned with their intended goal. A brief overview of each is presented below.

Olivia's L2 goal was to work in a multinational company, and she wrote a script about preparing for a job interview. However, the actual content of her visualisation during imagery practice was rather different, and a summary of this, in the researcher's words, is provided in Figure 39.

Olivia L2 Goal: To achieve success in a multinational company

Script Writes a script about a job interview.

Imagery Journal Day 1: Adrift on a peaceful ocean (likens it to a scene in the movie Life of Pi). Day 2: Married to a superstar. Day 3: Earning a lot of money in one night and becoming a successful businesswoman. Day 4: Has 2 beautiful babies. Day 5: Walking with parents in a park. Day 6: In a new flat with a friend. Day 7: Having lunch with classmates and feeling happy.

Specific Imagery Viv: 8,10,8 Ease: 8,10,9 Motivation: 9,10,8

Psi-Q 174-227

Figure 39 Overview of Olivia's imagery experience

We see that Olivia's script was not used at all over the week. Not only did she fail to incorporate her original interview goal, but her imagery content also lacked any connection to her L2 aspirations. Her visualisations spanned a variety of unrelated scenarios, from drifting on an ocean to fantasising about marrying a superstar, followed by dreams of overnight financial success and parenthood in the subsequent days. It seems that Olivia had used imagery to daydream, and this in fact verged on fantasy, such as the vision of marrying a superstar.

In her evaluation at T3, Olivia noted that she felt motivated to start exercising and lose weight: an indication that her visualisation had sparked a tangible motivation for positive lifestyle changes, but at the same time, an indication that she had envisioned a different ideal self altogether. She also noted that she had greatly enjoyed this exercise and it contributed to feelings of happiness and contentment.

Other participants who also incorporated elements of fantasy were Seven, who visualised playing football with his hero, Lionel Messi, and scoring a goal (Figure 41); and Razer, who included celebrities in his vision and travelling in a private aeroplane (Figure 40). It was notable that there was no language included in either of these visions, despite this being the original goal. This may begin to explain why mean quantitative ratings had shown a

decrease at T3 for vividness and motivation towards the Ideal L2 Self: as there was no detail of the L2 self in these visions.

Razer: L2 Goal: To speak English to colleagues.

Script Writes a script about delivering a presentation in the classroom.

Imagery Journal Day 1: Walking in a park. Day 2: Sitting at a friend's house, socialising. Day 3: Travelling to Spain on a personal jet. Day 4: Going to Ibiza, mingling and drinking with celebrities at a party.

Specific Imagery Viv:7,7,6 Ease: 8,8,8 Motivation: 8,8,6

Psi-Q 153-191

Figure 40 Overview of Razer's imagery experience

Seven: L2 Goal: to speak more fluently.

Script Writes a script about travelling abroad and making international friends.

Imagery Journal Day 1: Visiting Camp Nou in Barcelona. Standing outside, looking at the stadium. Day 2: Exploring the stadium. Day 3: Looking at players' pictures on the wall. Day 4: Meeting and playing football with Messi. Scores a goal and feels excited.

Specific Imagery Viv:7,8,8 Ease: 7,8,8 Motivation: 8,9,9

Psi-Q 116 -157

Figure 41 Overview of Seven's imagery experience

A commonality amongst several of those who had drifted from their scripts was that they used their visualisations to relax. We have already seen Olivia imagining herself adrift on an ocean, and for many other participants in the WS group, relaxation was a common theme in their visions. For example, Wangshuo, whose goal was to talk to others about her country (see Figure 42). However, in her visualisation there was no imagery of speaking, even though on Day 3, she was sitting with international friends. Instead, she created imagery in which she was cooking and eating with friends. In her evaluation, she noted that she felt happy and relaxed.

Wangshuo: L2 Goal: To speak English more confidently.

Script Writes a script about talking to foreigners about her country.

Imagery Journal Day 1: Sitting on the bus, thinking about Chinese food. Day 2: Eating food on the beach, feeling the warm sunshine. Day 3: Meeting friends and cooking with them. Day 4: Eating freshly baked chocolate cookies with friends. Day 5 - similar to Day 4. She notes that she feels happy and relaxed.

Specific Imagery Viv:5,9,5 Ease: 7,9 6 Motivation: 7,9,7

Psi-Q 104-135

Figure 42 Overview of Wangshuo's imagery experience

Rebecca was another participant who used imagery to relax. Despite incorporating some L2 content in her vision, (reading a newspaper, listening to the BBC as well as making notes), this did not appear to be motivational, and she mentioned feeling relaxed and comfortable several times in her journal (Figure 33). In her evaluation at T3, she added that there had been no impact on motivation or her intended behaviour, but that she had experienced an improvement in her mood.

Rebecca L2 Goal: To deliver a good presentation

Script Writes a very detailed script about delivering a presentation.

Imagery Journal Day 1: Reading a newspaper and drinking coffee. Day 2: Listening to BBC news and making notes, reading articles, Day 3: Watching English movie and drinking cola. Day 4: Listening to BBC news in background and cooking (notes that she is concentrating on cooking more than reading).

Specific Imagery Viv: 5,8,8 Ease: 4,7,9 Motivation: 8,8,8

Psi-q 171-209

Figure 43 Overview of Rebecca's imagery experience

We can also consider the case of Irene, who attempted to incorporate her L2 goal, but was unable to create a scene in which she was speaking in English (Figure 44). On Day 1, Irene greets a friend in English, but is unable to continue the conversation. She subsequently attempts conversation with a friend on Day 4, and is unsuccessful, only to find herself frustrated when the friend does not reciprocate. We can see that her imagery on the other days

involves natural settings, such as the view of a sunset and the aroma of flowers; and she is in fact able to imagine these vividly, enabling her to feel relaxed and peaceful. She is also able to chat fluently in her L1, which also evokes positive emotions. Although she has tried to visualise her L2 goal by incorporating friends, there is no actual interaction, and she is more successful at creating imagery related to her surroundings, creating a sense of calmness and tranquillity.

Irene L2 Goal: To make international friends

Script Talking to international friends in English

Imagery Journal Day 1: Opens the door to flatmate's friend, who rings the bell in her flat. Says hello to him. Day 2: Sits on the balcony and smells flowers – feels peaceful. Day 3: Watches the sunset from the balcony. Describes the landscape. Day 4: There is a friend in the flat, but he refuses to talk. Day 5: Leaves the flat to go shopping, chats with the shopkeepers in L1- feels great. Day 6: Arrives home and starts preparing dinner.

Specific Imagery Viv: 7,9,8 Ease: 7,10,8 Motivation: 10,10,10

Psi-q 147-183

Figure 44 Overview of Irene's imagery experience

So, this brings us to the key question: why did participants not use their scripts despite having crafted personalised scripts in the workshop? One possible reason for the shift away from the script was that the verbally directed nature of the written script interfered with the creation of images. In other words, participants found it difficult to read and visualise simultaneously, leading them to abandon the script and focus on generating mental images. This was expressed specifically by Seven and Rebecca in their evaluation questionnaires:

> It was hard to visualise at the same time as reading the script. I tried to make the images in my head, but I had to keep reading. So I stopped reading and focused on making the images instead. (Seven)

> I couldn't really read and visualise together at the same time, and I had to go back and read the script again to see if I remembered everything. (Rebecca)

These insights reflect a keen understanding from participants. Research has indicated that reading can disrupt the processing of sentences containing highly vivid imagery sentences (Eddy & Glass, 1981). Reading necessitates visual representation, as does the

mental imagery required to comprehend high-imagery sentences. Therefore, both tasks engage the same modality, and reading and simultaneously visualising can lead to modality-specific interference (Wagstaff *et al*., 2008).

Another possible factor was a perception of repetitiveness associated with using the same script daily, with 3 participants referring to this:

> It was quite boring using the same script over and over again. So I let my mind wander and started thinking about other things I would like to do. (Irene)

> The script was repetitive. I did not really use it after the first day as I preferred to create different images. (Seven)

> The script was not necessary. I could visualise more interesting things without it! (Olivia)

It seems that visualising the same scenario each day was not the way that participants wanted to visualise, and in fact, other evaluations indicated that, free from the constraints of the script, participants seemed to relish the freedom of unguided visualisation and allowing their minds to wander creatively:

> I loved visualising and dreaming: it was so much fun going to all these exciting places in my imagination! (Olivia)

> I was so happy to meet Lionel Messi in my visualisation and spend time with him! An amazing and unforgettable experience. (Seven)

We have also seen that when participants stopped using the script to visualise, they tended to use visualisation more for the purpose of relaxing and daydreaming. A common use of guided imagery is to facilitate relaxation and well-being, and the therapeutic benefits of visualisation are well-known; such as mood enhancement, the relieving of stress and anxiety, and a shift away from negative thoughts (Stopa, 2009). In this study also, when participants moved away from their scripts, they imagined scenes that enabled them to tap into such positive emotions:

> Visualising made me feel happy and relaxed. If I was in a bad or sad mood I started to visualise myself in a happy situation. (Wangshuo)
>
> I felt so peaceful after visualising the sunset from my balcony. It felt so real and made me feel so calm. (Irene)
>
> I felt very chilled out after doing the visualising exercise. It helped me to relax. (Rebecca)

If we recall, some of the participants in the LSRT condition who had added excess detail and drifted from their L2 self had also experienced a move towards imagery which induced feelings of relaxation:

- Marylou: Day 3 onwards - lying on a beach/ many sensory details of the beach/watching friends play volleyball/feeling relaxed
- Vicky: Day 4 onwards - baking and eating chocolate cookies/making lots of friends/feeling content and relaxed
- Sophia: Day 3 onwards - going out with friends to celebrate/details of party/music and dancing/feeling relaxed

This may indicate that for many participants, it was easier, more enjoyable, or perhaps more natural to create relaxational rather than motivational imagery.

Focusing on Ideal L2 Self without the script

Two participants, Li and May, also deviated from their scripts but managed to integrate their language learning goals into their visualisations.

Li L2 Goal: to chat to international friends in English.

Script Writes a detailed script about teaching international friends how to make dumplings

Imagery Journal Day 1: Goes to a pub with a German student, and focuses on understanding his accent. Day 2: Playing basketball with an Italian student and talking about Kobe Bryant. Feels happy. Day 3: Drinking at a pub with a Korean student, talking about their homelands, travelling dreams and future career. Feels excited. Day 4: Flying to Seattle to see aunt and her American boyfriend, Dan. Prepares a barbecue and talks to Dan about his coffee shop project.

Specific Imagery Viv: 7,8,8 Ease: 8,7,8 Motn: 10,10,8

Psi-q 127-169

Figure 45 Overview of Li's imagery experience

Li had written a detailed script about international friends gathering at his house to learn the art of making dumplings. His imagery over the week was not directly linked to this scenario; however, it incorporated speaking to international friends, and each day, he visualised a new conversation with a different individual in a new setting. In each entry, he explicitly documented the discussed topics, stating what the conversation was about (Figure 45).

In his evaluation, Li noted that there was an increase in dialogue in his imagery, whereby he was "adding more lines and more talking every time", and on Days 3 and 4, he highlighted that there was "more talking and more topics, and there is less imagination about the environment". This was an indication that the more he focused on speaking, the less he was able to focus on external stimuli; an indication of how the limited capacity of the working memory affects imagery content. Fortunately, Li was able to focus his attention on relevant information (speaking) by eliminating irrelevant information (environment). However, it was noticeable that he had only visualised until Day 4, rather than Day 7, despite saying that he enjoyed the experience. This seems concurrent with the LSRT findings of this study, whereby Day 3 or Day 4 seems to be the point until which participants were able to maintain a relevant vision.

Whereas in LSRT, those that had utilised layering well had been the high imagery visualisers, Li was on the lower end of the WS group, with a T1 Psi-Q score of 127.

However, his T3 score rose to 169, and he felt that his imagery skills had improved considerably:

- This practice really improved my visualisation. Before, I did not realise I could image so much.
- I can now image the scene and story faster. I can involve more topics as well.
- I felt more feelings and emotion during this exercise. On the last day, the human face was more clearly visible during my imagination.
  (Li's evaluation at T3)

Perhaps Li's successful creation of his Ideal L2 Self also related to the fact that his visualisations were realistic and he created authentic situations that could plausibly occur:

- I feel very real, because this imagination is factual.
- Sometimes I feel the scene in imagination is the same as reality.

(Li's evaluation at T3)

Li also expressed an increase in motivation towards his goal, and he demonstrated a genuine desire to expand his social circle and engage in meaningful conversations:

- It made me feel like I want to go to the real pub to drink with my own friends, and order a corona with lime.
- I'd like to make more friends in reality.
- I'd like to go to a pub and find someone to chat to.
- I loved this experience. It was interesting, unforgettable and delightful.

(Li's evaluation at T3)

However, this improvement was not reflected in his numerical ratings for vividness and ease, which did not increase in line with the comments that had been made, and his rating for motivation in fact dropped at T3. While Li did not provide specific comments on these ratings, it is possible that he may have struggled to quantify his imagery in numerical terms; an issue that another participant (Miriam-LSRT) had identified.

May was another participant who managed to successfully visualise her Ideal L2 Self without using the script (see Figure 46), and although we will not delve into her experience in detail, it was noticeable that, like Li, she too had focused on the detail of speaking in a new situation each day. It was also noticeable that May had only recorded in her journal until Day 4 – although there was no indication why, it may be that this was the point after which she was unable to add more detail– which would again be in line with the LSRT finding whereby the optimal number of layers appeared to be 3 or 4.

May L2 Goal: to communicate more confidently.

Script Writes a detailed script about delivering a presentation to classmates.

Imagery Journal Day 1: Speaking fluently to delivery driver who delivers a parcel. Day 2: Goes shopping and speaks fluently to shop assistant - feels confident, Day 3: Takes her parents around Birmingham, speaking to other tourists in English – feels happy Day 4: goes for dinner and speaks only English -feels competent.

Specific Imagery Viv: 7,8,8 Ease: 8,7,8 Motn: 10,10,8

Psi-Q 116-157

Figure 46 Overview of May's imagery experience

Imagery based on Script

We can now move on to the 5 participants in the WS group who had utilised their script, and were successfully able to visualise an Ideal L2 Self. However, despite remaining with the basic scenario of their script, it was notable that they too had added new details during the week.

Rachel was one participant who successfully used her script and created a vision of working as a nurse in London (Figure 47). Her vision unfolded in a hospital, with a new stimulus each day, in the form of a different person or situation. Each day saw her engaging in English conversation with either patients, their families, or doctors and nurses. By Day 7, she even envisioned thinking in English, and noted that her motivation was at a peak. Rachel's imagery experience was reminiscent of that of the strong visualisers in the LSRT group, who were able to develop their imagery gradually; however, Rachel's Psi-Q score (135) at T1 did not indicate that she was a strong visualiser.

Rachel L2 goal: to speak English more fluently and confidently

Script Writes a detailed script which is based on her as a nurse in a hospital in London in one year's time.

Imagery Journal Day 1: speaking to patients Day 2: speaking to their families, Day 3: speaking to doctors and nurses, Day 4: specific situation with patient in waiting room, Day 5: different activity with patient, Day 6: speaking with everybody at hospital in English, Day 7: thinking in English. (She also reports that her motivation is at a peak on day 7)

Specific Imagery Viv: 8,9,9 Ease: 9,8,10 Motn: 9,10,9

Psi-Q 135-181

Figure 47 Overview of Rachel's imagery experience

Another participant, Katy, also maintained the same setting as her script—travelling in NYC—whilst introducing daily variations in activities such as shopping, having lunch, and visiting a museum (Figure 48). Notably, each scenario consistently included elements of speaking in English.

Katy L2 Goal: to use English to travel and explore independently.

Script Writes a detailed script about travelling in New York City (NYC).

Imagery Journal Day 1: shopping on 5th Avenue, using English, Day 2: having lunch on 5th Avenue, Day 3: chatting with a local about culture and customs of NYC, Day 4: visiting a museum and having a deep discussion with another visitor.

Specific Imagery Viv: 7,8,9 Ease: 7,8,10 Motn: 9,9,10

Psi-Q 180- 221

Figure 48 Overview of Katy's imagery experience

Polly's journal also showed an ability to use her script and successfully visualise an Ideal L2 Self (Figure 49), which engaged with guests in English over dinner. On most days, she incorporated additional stimuli into her vision, which showcased her progression in her language journey, as well as her increasing confidence, such as on Day 4 when she received compliments and responded with humour. Beyond Day 5, no new stimuli were added, and she continued visualising the same situation.

Polly L2 Goal: Speak English more fluently and confidently

Script Writes a detailed script about preparing dinner for colleagues and engaging in conversation with them.

Imagery Journal Day 1: in her house, preparing for a dinner. The bell rings and her colleagues are at the door 15 minutes before arrival time. They only speak English, and Polly speaks to them. She feels satisfied and self-confident. Day 2: Same as script, but offers the visitors a glass of wine. Day 3: The visitors compliment her and she responds with a joke, Day 4: Continues a conversation with her guests. Day 5: Visualises her house, there are flowers on the table. Day 6 and Day 7: Same as script.

Specific Imagery Viv: 7,9,10 Ease: 9,9,10 Motn: 10,10,10

Psi-Q 142-192

Figure 49 Overview of Polly's imagery experience

Lily's imagery journal, which was also based on her script, reflected her progress and experiences related to her language and career goals. She was able to visualise an Ideal L2 Self, improving her English fluency and confidence while pursuing her passion for Economics, as well as marrying and starting a family, and thus incorporating both her personal and professional goals (Figure 50).

Lily L2 goal: speak English more fluently and confidently and specialise in Economics.

Script Teaching Economics at high school in Shenzen.

Imagery Journal Day 1: Receives job offer from international high school to teach Economics – feels satisfied. Day 2: Teaching Economics. Marries boyfriend and has two children and a dog (notes that she has just spoken to boyfriend on the video chat in reality). Day 3: Teaching Economics and speaking to students and foreign friends in English – feels happy and confident. Day 4: Giving a lecture to students – feels energetic.

Specific Imagery Viv: 8,9,8 Ease: 10,10,9 Motivation:10,10,10

Psi-Q 159-202

Figure 50 Overview of Lily's imagery experience

Mashal was the weakest visualiser in the group, according to her Psi-Q score at T1 (63), which jumped substantially at T3 (177). This improvement contradicted her classification as the weakest visualiser in the group. Examination of her imagery journal

showed details of vivid scenes, which incorporated new stimuli each day, alongside emotional propositions (Figure 51). Her evaluation comments did not suggest that she had found visualising difficult. Therefore, it is not clear why her Psi-Q was so low at T1.

One plausible explanation stems from Mashal's feedback that she had found it noisy and difficult to concentrate during the workshop. She highlighted that she needed to visualise alone and without distractions. Subsequently, she visualised at the same time in her room every evening using relaxing music to aid her concentration. This change in practice may have contributed to her improved Psi-Q score at T3; and therefore the low T1 score might have been an issue caused by practicalities, rather than a true reflection of her general imagery ability.

Mashal L2 Goal: Speak English more fluently and confidently

Script Teaching in a classroom

Imagery Journal Day 1: Teaching in a primary school. Day 2: At the gym with the class. Feeling happy. Day 3: Teaching about emotional education. Day 4: takes her class for an outdoor trip. Enjoys the nature. Day 5:Back in the classroom, chatting to students about the weekend. Day 6: Taking part in sports day with students. Day 7: Teaching students about biology.

Specific Imagery Viv: 6,8,6 Ease: 5,8,6 Motn: 8,10,9

Psi-Q 63-177

Figure 51 Overview of Mashal's imagery experience

Summary of Findings from Written Scripts

Participants in the WS condition were asked to visualise using an Ideal L2 Self script that they had produced during the workshop. However, 8 of the 13 participants did not use the script and instead independently created their own imagery over the week. This is an interesting finding, suggesting that written scripts in imagery interventions may not be useful, as several participants chose not to use the script. Reasons cited included perceiving the script as repetitive, and experiencing difficulty in simultaneously reading the script and visualising.

As a result of discarding the script, the majority of participants were unable to maintain focus on their Ideal L2 Self, and for many, although it was vivid, the imagery generated was largely unrelated to the L2 goal. Quantitative results showed that WS was the

least effective at enhancing specific imagery ability and motivation, with a fall at T3 for both vividness and motivation: indicating that one week of imagery practice with the written script had a negative effect on participants' specific imagery ability. However, we have now seen that several participants had not in fact used the script to visualise, and this may explain the reduction in the mean scores for vividness and motivation towards the Ideal L2 Self at T3, given that 6 participants in the group had not visualised their Ideal L2 Self over the week.

Interestingly, participants in the WS condition appeared to be the most successful at improving their general imagery ability; a paradoxical result, given that specific imagery vividness had deteriorated. However, after seeing the imagery journals of participants, this may be explained by the fact that participants in this condition had visualised different scenes and settings, often related to daydreams, mind-wandering and fantasies, and therefore had a more diverse experience of visualisation over the week, which was just as rich in vividness and meaning: enabling them to enhance their multisensory vividness in a more general way.

Of course, this improvement was not reflected in the specific imagery ratings for the Ideal L2 self, and we have already highlighted that this was likely due to some participants' imagery not containing L2 content. This raises the issue of the relevance of imagery content to imagery outcome, and we can see that the written script was not always able to facilitate this. Many participants changed the reason, or the *why,* of their visualising, despite having initially detailed this when they chose their L2 goal during the workshop. It may also be that because participants were not instructed to reflect on their image during the intervention, as was the case in LSRT, they were not able to consider whether the image they were creating was a correct representation of their desired goal; and rather, went on to create imagery that served their desired purpose at that moment in time.

When participants strayed from the script, they tended to engage more in relaxation-oriented or daydreaming imagery, potentially indicating a preference for such scenarios in the absence of script guidance. As such, they were utilising the motivational general function of imagery rather than the motivational specific (Paivio, 2005), whereby their imagery was related to calming emotions, rather than focusing on goals. Participants' comments in this study indicated that they preferred the creative function of imagery and enjoyed using imagery to let their minds wander. This is in line with the research of Antonietti and Baldo (1994), who found that undergraduate students perceived imagery to be

more useful in creative and undirected thinking rather than in more directed cognitive processes, such as memorising, problem-solving, planning, and decision-making. Mental imagery is well known as a therapeutic tool, with research showing that it facilitates a mind-body connection that has a calming effect; reducing anxiety and stress, and participants' experiences here highlight the potential of mental imagery for mood enhancement through visualisation.

Despite limited use of the script, we cannot assume that the written script was in itself useless, due to the fact that a) quantitative ratings showed that when participants used the script to visualise in the workshop, their T2 ratings had increased, and b) there were 5 participants who were able to visualise their L2 self successfully whilst using the same script. However, it was notable that they too were using layering, gradually adding relevant layers to their script; an indication that imagery does not remain static.

7.11.3 Audio Scripts

All 11 participants had written an imagery script, and recorded this onto their phones during the workshop session. Over the week, they were asked to visualise using their recording, and to note details of their imagery in their journals, with an average of 6 entries per journal (min: 4; max: 7).

Upon examination of journal entries, it was noted that all participants in this group had also moved away from their script, adding new elements to their visualisation, and in some cases, changing the situation and settings over the week. However, despite this, the imagery created was more in line with, and relevant, to the Ideal L2 Self than in the WS condition, and none of the participants had lost complete focus on their L2 Self.

We can illustrate this through the case of Shirley (Figure 52). After Day 1, Shirley's imagery was not related to her script; however, elements of her Ideal L2 Self consistently emerged each day. From conversing fluently with colleagues, ordering food in English, finalising contracts with foreign clients, and confidently presenting and answering questions in front of other students, each day saw Shirley using the English language in a new setting, which was her L2 goal. There was clearly a strong emotional element in her vision, as she states that she has 'fallen in love' with English, and acknowledges the opportunities English presents for her future. Finally, returning home to her British husband, Shirley feels content

and fulfilled with the life she has built in the UK. Thus, Shirley had created a holistic vision, covering the domains of academic, social, career and family life. Throughout her journal, there was a sense of accomplishment and increasing happiness, and she commented that the intervention had left her wanting to learn English "more intensely"; a feeling that was reflected in her ratings for motivation (although we can see that her T1 rating was 10, so there was no room for her to increase this further post-intervention).

Shirley L2 Goal: To speak English more fluently and confidently

Script Records a script about attending a macroeconomics conference in China.

Imagery Journal Day 1: talking fluently to a person in English about the economy, Day 2: ordering food in English at a restaurant with some friends, Day 3: communicating with a foreign client to finalise a contract, Day 4: responding confidently to a lecturer's question in the classroom when no one else responds, Day 5: presenting fluently in English in front of many students, Day 6: working on the top floor of a skyscraper in London, talking to local people (on this day, she adds that she feels she has fallen 'in love with English' as it is 'a tool that can help me a lot in the future'.) Day 7: goes home after work and British husband is cooking food for her. Feels very happy and loves living in the UK.

Specific Imagery Viv: 8,7,9 Ease: 7,8,9 Motn: 10,10,10

Psi-Q 157-178

Figure 52 Overview of Shirley's imagery experience

Another participant for whom academic and career self were interspersed in the vision was Joy (Figure 53). While Joy's imagery on Days 2 and 3 closely aligned with her initial script, the narratives on the other two days deviated. However, each entry remained connected to her overarching L2 goal—an ideal self that was proficient in confident speech, and the underlying theme of developing linguistic confidence was consistent in her imagery. On Day 1, Joy visualised visiting a history museum, noticing a painting, and wanting to know the meaning of the painting. This prompted her to ask someone about it, and although she felt nervous, she was successful in communicating. On Day 2, she moved to introducing a product to customers, and on Day 3, presenting to colleagues. Day 4 saw Joy borrowing an academic book in the library and conversing with the librarian.

Joy L2 Goal: To speak English more fluently and confidently

Script Writes a script about working in a company and conducting a meeting with international colleagues

Imagery Journal Day 1: walking in a history museum, feels nervous, but forces herself to talk to someone and feels good. Day 2: in an office setting, communicating with customers, feeling confident. Day 3: delivering a presentation to colleagues fluently - feels very confident. Day 4: borrowing a mathematical economics book in the library and talking to librarian

Specific Imagery Viv: 6,6,7 Ease: 4, 4,4 Motn: 10,10,10

Psi-Q 181-193

Figure 53 Overview of Joy's imagery experience

To consider another example, we can look at Skye's experience (Figure 54). Her script involved attending an English class at college and planning international travel, and over the week, though her imagery was not based entirely on the script, both academic study and travel were included and a sense of relevance to the key elements of the script was present.

Skye L2 Goal: Speak English more fluently and write a good essay

Script: Writes script about attending an English class at college, and planning travel abroad

Imagery Journal Day 1: reading academic books in library, Day 2: day trip to London and talking in English to staff at the British Museum, Day 3: travelling in Libya, making friends with volunteers from all over the world Day 4: sitting in front of a computer doing academic writing Day 5: studying for an English exam Day 6: in a room with a friend preparing for an English presentation

Specific Imagery Viv: 4,5,7 Ease: 6, 6, 7 Motn: 7,7,9

Psi-Q 203-203

Figure 54 Overview of Skye's imagery experience

For other participants in the AS group, the link between script and imagery content was similar. On the whole, they were able to manage their imagery, and despite changing settings, were able to keep it relevant to their Ideal L2 Self. So, what distinguished the audio script from the written script, and how did the visions of this group remain connected to the L2 goal?

Comments from AS participants demonstrated positive feedback on using the audio script for visualisation, and in particular, how it enabled them to maintain a connection with their goals. A crucial insight came from Skye, who noted that listening to the recording aided her in remembering what to visualise: "Listening to the recording helps you to remember what to visualise". This was a sentiment shared by Joy and Shahzadi, who commented that the recording enhanced the process by offering guidelines and instructions on *what* to visualise:

- Sometimes I forgot what I visualised the previous day as my mind was so busy with planning for the next day. But the recording reminded me of my goal. (Joy)
- I think it might be easy to forget what to visualise without the recording. (Shahzadi)

The mode of listening to one's own voice was also perceived to be helpful in enhancing vividness by adding a personal touch:

- At first it was a little difficult to get in the mood for visualising, but when you listen to your own voice it feels more real. (Gisele)
- Listening to my own voice helped me to imagine myself in the scene easily. I felt it was easy to visualise myself in the scene after listening. It felt like it was my future story, and I kept on developing my story. (Skye)

Several comments highlighted the motivational impact of listening to the script, with participants explicitly mentioning this advantage:

- It was good using the recording, it reminded me of the good time in the workshop when we visualised our goal. Listening to myself made me feel I could really achieve it. (Shirley)
- This experience motivate me to achieve my goal. It's an easy thing to remember and a good way to motivate someone to achieve.' (Chuxin)

Summary of Findings from Audio Scripts

The audio group demonstrated a sustained positive impact across quantitative measures, suggesting that the audio script enhanced vividness, ease and motivation towards the Ideal L2 Self. This was confirmed by qualitative feedback, which showed that participants using the audio script found it to be a valuable tool. Listening to the recording helped them recall what to visualise and provided clear guidance, sometimes when their minds were occupied with other tasks. Moreover, some participants found that listening to their own voices in the audio script enhanced the vividness of their visualisation, making the experience feel more real and personal. This may suggest that audio scripts facilitate a deeper level of immersion compared to written scripts. However, there was no evidence that AS experience was specifically more multisensory than that of WS participants.

Crucially, by listening to their script, participants were reminded of their goal, and thus, it appears that the audio script not only facilitated visualisation but also contributed to maintaining a focused connection to the original goal. This resulted in the audio group's ability to keep the imagery linked to the original goal. At the same time, we can see that the audio script provided the flexibility to incorporate new elements, and in this group too, rather than visualising the same image each day, participants modified their own scripts; however, imagery content remained connected to the L2 goal and remained realistic, regardless of changes in settings.

7.12 A Note on Positive Emotions

It was notable that the majority of participants in the study perceived the intervention as useful and helpful, as well as enjoyable. This was evident in their post evaluation responses, which referred to improvements in mood and a general feeling of happiness brought about by visualising. This bodes well for encouraging future use of such visualisation in the classroom, as learners are on the whole open and receptive. Visualising an ideal self, in whichever domain, is likely to lift that mood. It may not always be necessary to insist that the vision contains reference to the L2. Letting the imagination run and allowing learners to visualise whatever makes them happy, whether that is marrying a popstar, hanging out with Lionel Messi, or simply baking a cake, will play an important role in promoting learner well-being.

However, interestingly, Psi-Q results showed that for each technique, the least improvement was in emotional feeling, which would suggest that the imagery techniques employed may not have effectively elicited or capitalised on emotional responses. For example, in LSRT we saw that several participants had focused on adding more stimuli rather than emotional propositions. Seemingly, participants in WS and AS had incorporated more emotional propositions in their scenarios; however this did not translate into the Psi-Q scores, suggesting a lack of emotional propositions in all. This finding prompts further exploration into how to stimulate emotional engagement and incorporate strategies specifically designed to evoke and amplify emotional responses.

7.13 Limitations

The approach that this study took in measuring imagery ability was a quantitative one. While the ratings for specific imagery abilities were beneficial in illustrating the development of vividness and ease over time, they were inherently subjective. For example, two participants with equivalent imagery vividness might assign ratings of 6 and 9 respectively. Nevertheless, these ratings were useful for demonstrating individual progression over the intervention; although, some participants started off choosing high numbers - so even if vividness or ease had increased, the maximum option they could choose was still a 10, thus demonstrating the issue of the ceiling effect within the study design.

Further, some participants explicitly stated that it was difficult to rate their imagery and motivation in numbers, and it was found that qualitative data sometimes contradicted quantitative results, whereby numbers did not represent the impact that participants *said* the techniques had. Post-intervention evaluation at T3 showed that some participants felt their vision had become more vivid over the week, but that their ratings did not reflect this.

Moving specifically to the Psi-q, general imagery appears to be a different construct from motivational imagery - if a person can vividly visualise an apple, it does not mean they can visualise themselves speaking English. This is demonstrated by the case of the LSRT participant who could hear the items on the Psi-q, but could not hear her classmates or lecturers in the vision she was trying to create. Therefore, perhaps in an L2 motivational context, general imagery ability (in the traditional sense, the one that is measured through questionnaires) does not bear much impact for the Ideal L2 Self. A person's ability to

visualise a standardised list of items vividly does not mean that they will be able to generate a high quality motivational Ideal L2 Self.

Finally, there were disparities in how these techniques impacted participants with different levels of imagery ability, suggesting that the interventions might not have adequately addressed individual needs relating to imagery ability; however, this was not sufficiently addressed, and it is not possible to draw any conclusions.

7.14 Conclusion

The goal of this intervention was to enhance language learners' imagery ability in order to create more powerful imagery of their L2 self. This was in line with the second phase of the Motivational Vision Intervention programme: Strengthening the Vision, which stresses that in order to exert a motivational function, the vision that the learner has created should be vivid and elaborate.

For this purpose, three different techniques that utilised participant-generated imagery were tested for their impact on mental imagery ability and motivation. All three methods impacted positively on ease, and this impact was more profound after one week for both LSRT and audio conditions: confirming that more practice does improve ease of imaging. Results for vividness were more variable, with LSRT and Written Scripts both showing a decrease after independent practice over the week; and Written Scripts also displaying a decrease in motivation.

Qualitative data shed further light on the issues that some participants experienced when using these techniques. When using LSRT, several participants found themselves including too much information into their visions, which was difficult to incorporate into a meaningful scene. It is possible that the overload of information overwhelmed the capacity of the working memory to process and manipulate the relevant information into a complete mental image. The controllability of imagery then became an issue for these participants, as they struggled to filter out irrelevant information.

Several other LSRT participants were able to initially create an Ideal L2 Self but found that the continued addition of detail led them away from this L2 self. This issue may not have been created by LSRT itself, and rather by the design of the intervention, which

instructed participants to continue adding layers until Day 7. Therefore, findings indicate that LSRT is useful for up to 2 or 3 layers for creating an Ideal L2 Self, as surpassing this can lead to excessive and irrelevant detail. This also highlights the role and importance of the teacher in guiding layered imagery, as many participants, with the exception of the two strongest visualisers, were unable to sustain a relevant vision on their own.

Two forms of scripted visualisations were also tested in this study: namely, written scripts and audio scripts, with both displaying quite different results. In the WS intervention, several participants did not use their script, and, in most cases, this led to unstructured imagery, which was not focused on the ideal L2 self; was relaxational; and sometimes based on fantasy. AS scripts were more successful in facilitating the alignment of the imagery with the intended goal, and participants appeared to engage more with their scripts. The key distinction between the AS and WS groups lay in how participants were able to maintain a connection over the week between their visions and the Ideal L2 Self; with the latter group being far more successful in doing so.

This difference may be explained by the idea that listening to the script facilitated easier visualising, as the auditory modality did not interfere with image creation, whereas reading the written script did. Written scripts required more effort from participants to read and visualise, as both processes rely solely on visual input. The audio scripts appeared to aid memory relating to the L2 goal, as well as enhance the vividness of visualisations, ultimately contributing to greater focus and alignment with language learning goals.

Whilst the idea of learners creating their own imagery is useful for learners to develop content specific to them, this study has shown that when left to their own devices, they can lose focus on their goal. It is not always easy to keep the L2 self in mind as other goals and other images interfere and compete for attention. It seems therefore that detail and vividness are not the only ingredients necessary for the generation of an impactful and motivational Ideal L2 Self. What is central in determining motivational impact is the relevance of the future self that is envisioned. If the future self is not relevant, despite being vivid and detailed, it will not achieve the desired function: in this case motivation; and in this study, in many cases, the mental representation was not relevant to the L2 goal.

This study has also cast some light on the role of imagery ability in the context of the Ideal L2 Self. In the introduction, I asked a question: "after all, if a language learner is unable to visualise effectively, how can they create an image of a future self that will exert any motivational impetus?" My rationale for conducting this study was that learners' visualisation ability is crucial; the assumption being that the higher the learner's imagery ability, the more powerful the L2 vision. Yet, this study has shown that despite improving their visualisation ability, language learners were still often not able to create a motivational L2 self.

Further, despite the initial assumption that higher imagery ability correlates with a more potent L2 vision, this study challenges that notion based on the results, as even those with lower ability scores can create vivid, elaborate visions. Visualisation ability alone does not guarantee the creation of a motivational Ideal L2 Self. Instead, the study emphasises the paramount importance of the relevance and meaning of the vision, in line with Martin *et al.*'s (1999) premise that, in order to be effective, imagery content must match the intended outcome. The key to enhancing imagery effectiveness is that imagery content should be personally meaningful and relevant, and thus carefully planned.

Finally, from a general perspective, this study has yielded positive results for the use of imagery interventions in the classroom. Learners are positive about its effects, and importantly, also about their own ability to create mental simulations. They demonstrated an increase in self-belief, positive expectancy and an increased metacognitive awareness. Further, most participants perceived the intervention as useful and helpful, as well as enjoyable. This positive reception bodes well for encouraging future use of such visualisation techniques in the classroom, as learners are generally open to and excited about it.

Chapter 8 Summary and Conclusion

8.1 Introduction

This thesis has presented two studies on vision with EAP learners. Study 1 took a broad view, by examining how learners constructed their L2 visions, while Study 2 focused on the strengthening of these visions by investigating the more practical aspects of imagery.

So, what have we learned? In this final chapter I will bring together the conclusions from these two studies. The chapter is divided into two sections: the first part discusses and summarises the main themes that have emerged from the studies; and the second part considers some of the pedagogical implications arising from these findings, alongside some ideas for future research, and a brief conclusion. We will begin however with a brief recap of the two studies.

Study 1

This study conducted an exploratory analysis of the Ideal L2 Self narratives of 25 EAP students, revealing well-developed future visions in which learners saw themselves as global citizens communicating in various domains. The most common domains and scenarios were related to career, travel, and family-related contexts. The study also provided insight into the personal context that the L2 Self was situated in, revealing the ideal self at a more global level. The richness and detail of these visions offered a fascinating glimpse into learners' future goals and desires, both at a domain-specific level and a more holistic level.

Study 2

This study was conducted with 35 EAP students, and aimed to enhance their ability to create a vivid and motivational Ideal L2 Self. Three different techniques utilising participant-generated imagery were tested over one week for their impact on mental imagery ability and motivation. When viewing the intervention overall, the results indicated that audio scripts were the most successful at improving imagery ability and motivation, whilst written scripts were the least effective. LSRT was more variable, impacting positively on ease and motivation throughout, but showing a decline in vividness after a week of independent practice. The intervention impacted general imagery ability positively on the whole, and in terms of individual senses, all modalities improved after the intervention; although it was noted that the least impact appeared to be on the emotional feeling sense.

Qualitative data highlighted the importance of maintaining focus on the L2 goal when visualising as crucial for motivation. Several learners were unable to maintain focus on their L2 goal, and the study highlighted the importance of relevance of the envisioned future self over mere vividness and detail. Despite some challenges, the intervention showed positive results, with learners demonstrating increased self-belief, positive expectancy, and metacognitive awareness, indicating the potential benefits of incorporating imagery interventions in language learning.

8.2 Key Themes Emerging from this Thesis

When viewing the findings of this thesis as a whole, four key themes emerged, and these will be discussed in turn.

8.2.1 Interconnectedness of L2 Self and Global Self-Concept

The Ideal L2 self is generally conceptualised as a learner's desired self in the L2 domain, i.e. the characteristics he or she wishes to have in the future as a language user **(**Dörnyei, 2005, 2009). However, this thesis has shown that when learners visualised their ideal L2 self, it did not emerge as stand-alone; rather, it was situated within a larger life vision or a more holistic self. Section 6.4.2 provided some examples of this, however to reiterate, let us consider the vision narrative of Anna, a participant in Study 1:

> I am a successful business woman in a large multinational company abroad. Like a secretary or a manager working for the top person in my company and doing some important jobs to help the boss to manage the company. The clothes I wear are chic at most times, and in my rare free time I drive my big SUV to climb hills, with my close friends for finding restaurants with delicious food. I am paying for my parents to travel around the world, and I hope I can also buy a big house for them. Maybe I will have kids, and I will give them the freedom to choose the style they want to live. (Anna)

In her vision, Anna references her job, her appearance, her hobbies, her parents, and also the possibility of having children. It is noticeable that she does not directly mention the L2 in her vision. Should this be classed as a non-L2 ideal self? While it may seem that the L2 is absent from her desired future, it is more plausible that her language vision is seamlessly

integrated with her personal vision. This can be interpreted from the fact that her vision begins with a successful career in a multinational company abroad, which likely necessitates L2 proficiency; suggesting that her proficiency in the L2 is integrated into her overall life vision, rather than standing alone as a separate goal. Therefore, although the vision derives from the Ideal L2 Self, it becomes difficult to isolate the characteristics that are exclusively related to the Ideal L2 Self, as there is no clear delineation between language learning and personal ambitions.

Is it necessary however to try and isolate the L2 self? Lake (2016) argues that the Ideal L2 Self should be considered from a global perspective, and can not meaningfully be reduced to domain specific components. Boyatzis and Akrivou (2006) also emphasise that a crucial aspect of a healthy ideal self is "the coherence of the image – is it a holistic image of a desired future?" (p. 635). In other words, is the L2 self integrated within the rest of the person's desired life and future?

This holistic approach aligns with Ushioda's 'person-in-context' view of learner motivation, which posits that being a language learner is "just one aspect of their identity" (2011, p. 216). According to Ushioda, students should be engaged with as people, with different identities and goals, not just as language learners. The findings of this thesis support this perspective, demonstrating that visionary L2 goals are frequently intertwined with personal goals, highlighting the interconnectedness of language learning with personal and professional ambitions. Although participants were asked to articulate their Ideal L2 Self in ten years, visualising this self strengthened the connections between L2 goals and the learner's broader life narrative. Seemingly, vision enabled participants to construct identities that automatically integrated L2 goals with personal goals, without the need for explicit coordination.

From a motivational perspective, this is good news, because learners were able to see how learning the L2 would impact their future lives from a global level. When learners perceive their L2 goals as intertwined with their personal aspirations, there is a greater sense of commitment to language learning. Muir (2020, p. 333) highlights that "relating content to learners' personal experiences and lives outside of the classroom has been empirically linked

to positive motivational outcomes (Alrabai, 2016; Moskovsky, Alrabai, Paolini, & Ratcheva, 2013; Poupore, 2014)".

Do EAP courses take advantage of this source of motivation? The function of a pre-sessional or foundation course is to prepare students for academic life and to equip them with the instrumental skills that they will need at the university. However, it is unfortunately often the case that pre-sessional students struggle throughout with the linguistic demands of their degrees and obtain lower marks than their direct-entry and native counterparts (Pearson, 2020). It is likely that the role that the L2 might play in their future life may not be as clear to them at this time, and that their linguistic motivation may be limited to simply trying to survive and 'get by' on their degrees. This has obvious implications in terms of the stress and frustration that it will cause, and ultimately for levels of motivation and engagement towards the L2. Whilst short-term skills such as listening to lectures, writing essays and reading articles are important, learners need to see how what they are learning will be helpful for them practically in later life. If what goes on in the classroom is more aligned with learners' more implicit and long-term pragmatic motivations, it may be possible to engage the motivational power of the ideal self. Suggestions for how to do this will be outlined in the pedagogical implications in 8.3.2.

8.2.2 Placement of L2 Self in Meaningful and Authentic Situations

It was noted that in constructing their L2 visions, learners incorporated very personal settings. This corresponds with Mackay's finding (2019) that "learners exposed to the intervention programme may be more inclined to perceive their future L2-speaking self within a personal context", and that "these learners often situated their visions in familiar and intimate situations" (p. 58). It also brings into play Mercer's observation that "learners often refer to other domains, which they perceive as being relevant and related, maybe in unexpected ways, when describing themselves as EFL learners" (2011, p. 168).

Drawing out the learner's personal context and aligning L2 learning with their life goals can significantly enhance L2 motivation and engagement by making language learning a more authentic part of their overall life vision. From a motivational point of view this is significant, as authenticity is a key motivator, as noted by Henry *et al.* (2023), who point out

that despite the significant focus that SLA research has placed on authenticity, this focus has largely been on materials, rather than on the learner.

When learners identify their L2 goals with their personal goals, it is likely that their language learning will be more aligned with their core identity, i.e. the “set of enduring individual characteristics" that are unique to each individual (Boyatzis & Akrivou, 2006, p. 327). As a result, language learning becomes more personalised, purposeful and meaningful; and in this way, vision allows for a self-concordant type of motivation (self-concordant goals are those that are aligned with our deepest values, priorities, interests and desires rather than being set for external reasons) (Sheldon & Elliot, 1999), which are perceived as more natural and enjoyable to pursue (Werner *et al.,* 2016).

This was evident in the extent to which universalism and benevolence featured as prominent values within the visions. Many learners expressed a desire to make a positive impact on society or family, seemingly driven by an ethical idealism that motivated them to help others—whether by protecting the environment, helping animals, voluntarily assisting others with English skills, or providing financial assistance to parents. These compassionate motives align with the concept of altruism, defined as “a motivational state with the ultimate goal of increasing another’s welfare” (Batson, 2011, p. 5).

The altruistic focus may be linked to the use of mental imagery, which might not have emerged if participants had been asked to state their L2 goals without visualising. Mental imagery is recognised as an effective way of accessing altruistic values (Decety & Lamm, 2011). The relationship between vision and prosocial values is highlighted in studies showing that people make more ethical judgments after mentally simulating a situation. For example, Caruso and Gino (2011) found that people were more altruistic in sharing their money with a stranger when they had simulated the scene with their eyes closed rather than open. Similarly, Gaesser and Schacter (2014) reported that increased imagery vividness was associated with an increased willingness to help someone in need. During imagery, the situation is experienced as more realistic and emotionally salient, thereby mediating the ethicality effect and leading to more prosocial judgments (Ganis, 2020).

Of course, vision is not related to morality or right or wrong per se, and this type of cognition may not be relevant in L2 visions. However, we should note that the vision is of the ideal self, and the ideal self will automatically bring into play one's ideal values. Imagining our ideal selves means seeing ourselves acting at our best, embodying our loftiest ideals. Vision, therefore, becomes moral by elevating our conduct and ethical behaviour, as seen in the first study where kind and caring behaviour was prominent. In this sense, vision reminds us that students do not simply seek to enhance their own positions, but also wish to help others.

This emphasis on altruism has significant implications for education, suggesting the need to incorporate these values into curriculum development and teaching methods. As educators in universities, it is crucial to recognise our role in cultivating the future generation of teachers, politicians, CEOs, entrepreneurs, and volunteers. This responsibility entails acknowledging and fostering the lofty ideals already held by these young adults. By doing so, we can help develop compassionate, socially responsible individuals who are motivated to contribute positively to their communities and the world. Therefore, embedding altruistic themes into EAP curricula is essential to nurture these values (see 8.3.2 for ideas for materials and activities).

8.2.3 Relevance of Imagery Over Vividness

The second study highlighted how participants often found it difficult to stay on task when visualising an Ideal L2 Self independently. While LSRT was very helpful in enabling participants to add detail and create elaborate visions, excessive detail over time introduced irrelevant stimuli. Similarly, participants using written scripts faced issues whereby discarding the script caused their imagery to stray from the Ideal L2 Self. Again, the issue here was not related to a lack of vividness, but a lack of relevance, as participants using the written script appeared to have lost focus on their Ideal L2 Self, and incorporated other selves and scenarios into their visions. Therefore, it appeared that the problem lay not in creating vivid and elaborate imagery; rather, it was the ability to self-reflect and keep the vision focused on the L2 goal throughout the intervention. This finding reinforces Markus and Nurius's (1986) assertion that the accessibility of a possible self depends on its presence in the working self at a given time.

As discussed in Chapter 5, several conditions are essential for the motivational capacity of the Ideal L2 Self:

1. The L2 learner should have a desired future self-image.
2. The future self should be sufficiently different from the current self.
3. A vivid and elaborate future self-image should be available.
4. The future self-guides should be plausible.
5. The future self-image should not be perceived as comfortably certain.
6. There should be harmony between the ideal and ought selves.
7. The future self-guides should be activated.
8. Procedural strategies should be in place.
9. The desired self should be offset by the feared self.
   (Dörnyei and Ushioda, 2011)

Based on the findings of this thesis, an additional condition is recommended: that the future self-image must be relevant to the desired self. The premise of the second study in this thesis was to focus on the third condition relating to vividness, as this has often been highlighted in the literature. However, results indicate that even a vivid and detailed future self-image will not activate the Ideal L2 Self if it does not align with it. Thus, relevance is key to ensuring that the future self-image effectively supports and aligns with the learner's L2 goals and aspirations. As we have observed, a diffusion of focus can occur when multiple possible selves or irrelevant details compete for attention with the Ideal L2 Self.

In maintaining relevance, learners will likely benefit from guidance, and the implications of this for teachers as imagery guides and practitioners will be discussed in 8.4. Within sport psychology, there is substantial support for the notion that the type of imagery should align with the desired outcome; i.e. that the function must match the intended outcome (Martin *et al.,* 1999). For this, it is important for individuals to be very clear about what they are visualising and why. Although this was taken into account in the design of the study, and participants in all conditions articulated their reason for visualising in Session 1 (using the 5 W's framework), many still lost focus over time. This highlights the importance of explicitly revisiting and reinforcing the content of the imagery (what learners visualise) with its intended function (why the learner is visualising) throughout the entire visioning process.

Although it is unclear how much this issue was related to imagery ability, participants with higher imagery ability in the LSRT condition managed their imagery more effectively by adding one stimulus at a time. Weaker visualisers, although initially generating vivid imagery,

later became overwhelmed and struggled with self-reflection, indicating a need for more support. Even some stronger and moderate visualisers faced difficulties with excess stimuli, showing that lack of relevance was not limited to weaker visualizers. Similarly, in the written script condition, no conclusions can be drawn around imagery ability as even learners with lower imagery ability scores were able to create effective visions, provided they were relevant and meaningful.

8.2.4 Positive Impact on Emotions

Neither of the studies in this thesis explicitly investigated the impact of vision on emotions. However, the positive effects of visualisation on learner well-being were witnessed in both. During the visualisation exercises in both studies, a positive atmosphere and deep engagement were observed by the researcher, and furthermore, participants reported in their feedback that they enjoyed these techniques. In terms of the content of the visualisations, this was also typically associated with positive imagery. Learners imagined themselves using the language successfully in various real-life situations; and even in cases where they veered away from the L2 self, their imagery remained positive.

In particular, the imagery, when unguided, often shifted to the function of relaxation with participants reporting positive emotions, indicating the immediate benefits of mental imagery on both mood and well-being. This natural inclination suggests the potential of imagery for its therapeutic and motivational benefits. In the classroom, guided imagery can be used to regulate emotions, such as by incorporating brief mindfulness visualisations at the start of lessons to enhance mood and energy levels. Even if this does not lead to outcomes, it will lead to enhanced self-expression, more self-concordant learning, and ultimately greater mental well-being, which can only be a positive result.

Further, both of these studies provided positive affirmation that imagery use led to an increase in self-confidence and self-efficacy, and that the use of visualisation was linked to an increase in feelings such as happiness and excitement. It is likely that positive emotions may also have arisen from the setting of meaningful and self-concordant goals, which can improve well-being (Dörnyei, Henry & Muir, 2016). Learners frequently incorporated close relationships into their visions, and relationships are particularly significant from a well-being perspective. For example, research has indicated that friendship and marriage are "the more robust determinants of happiness" (Peterson, 2006, p. 93). Furthermore, Diener and Seligman

(2002) found that individuals who classified themselves as extremely happy, as opposed to averagely happy, were those with close relationships.

Altruistic and helpful behaviour, another feature of the visions, is also linked to positive emotions (Insel, 1997; Barsade & Gibson, 2014). In this way, it is likely that relationships and altruistic behaviour both helped to create meaning, and thus positive emotions. This aligns with the principles of positive psychology, which emphasise the importance of meaning and relationships. To operationalize positive psychology, Seligman (2011) proposed the PERMA model, identifying Positive Emotion, Engagement, Relationships, Meaning, and Achievement as key elements essential for human flourishing. However, in the context of language learning, Gregersen (2019) suggested prioritising Meaning and Relationships when it came to initial motivation:

> I revise the order of the model somewhat, so that PERMA becomes RMPEA, this because Relationships and Meaning speak most poignantly to initial motivation, while Positive Emotion, Engagement, and Accomplishment highlight insights into sustaining the drive once learning has commenced.
> (Gregerson, p. 625)

This adaptation is supported by the findings of this thesis, which highlight the significance of relationships and meaningful engagement in learners' visions. As Gregerson summarises, “knowing that our actions have purpose and meaning is important to living a life of happiness and fulfillment” (2019, p. 627).

Consequently, the findings of this thesis suggest that vision-based strategies hold promise for educators, as imagery can influence emotions profoundly by fostering positivity, and enhancing student motivation and well-being. MacIntyre *et al.* (2019), in their article entitled ‘Setting an Agenda for Positive Psychology in SLA’, emphasise the need to apply positive psychology in SLA, advocating for a shift toward capitalising on strengths, optimism, and resilience. Vision-based thinking aligns well with this agenda, given that positive psychology is “the scientific study of what goes right in life,” (Peterson, 2006, p. 4), and the ideal self embodies a future in which everything has gone right. As we know, imagery is an amplifier of emotion, whereby it is able to exert a greater influence on affective states (whether positive or negative) than semantic processing (Wicken *et al*, 2019). Therefore,

incorporating visualisation methods in the classroom and encouraging learners to imagine their best possible selves could boost motivation by promoting positive emotions.

8.3 Pedagogical Suggestions

This section aims to build on the insights gained from this research and propose ways to integrate vision-based practices with language learners, both within the classroom environment and beyond. As they derive from the findings of this thesis, these suggestions are aimed towards EAP teachers and course designers; however, they may be utilised by anybody that is interested in incorporating vision in their classroom.

Recent SLA studies have indicated that occasional efforts at incorporating vision might not be well-received by students and are unlikely to produce lasting impacts (Henry & Liu, 2023). To maximise the motivational benefits of vision it should be formally integrated into the curriculum. Ideally, this integration would occur over a longer course, allowing for the development of individualised plans that generate, strengthen, and activate learners' Ideal L2 Selves. However, if time constraints and rigid schedules are challenges, incorporating vision-inspired materials and activities into the traditional classroom on a less structured basis can also be an effective option. The following section will elaborate on both approaches, proposing the use of vision-based coaching and the use of vision-based materials.

8.3.1. Vision-based Coaching

Although participants in this research were able to develop fairly clear visions of their Ideal L2 Self, in order to reach the end state, further elaboration of the ideal self is needed, as well as a road map.

One way to implement this is vision-based coaching. Building on Intentional Change Theory (Boyatzis, 2006), vision-based coaching proposes a shift away from problem-focused coaching to vision-focused coaching (Passarelli, 2015). This approach frames the coaching around the individual's ideal self rather than their current self. The advantage of this method is that it can trigger the Positive Emotional Attractor (PEA), by grounding the process in possibility, hope, intrinsic motivation and personal meaning (Howard, 2015). Howard's (2015) study with 18 dentists compared vision-based coaching, focusing on ideal selves, to

improvement-based coaching, focusing on current needs. The vision-focused group reported lower negative emotions, higher positivity, and greater engagement. They also emphasised personal passions, leading to more aligned goals and enhanced well-being, findings that align with the conclusions drawn in this thesis.

In this thesis, the vision exercises conducted were of a short duration. To fully harness the benefits of vision, it is recommended to integrate vision-based coaching over longer periods; whereby coaching in this context is considered as an individualised intervention where a teacher or tutor works with a learner to identify and achieve their personal development objectives. This could be feasible with EAP learners, as courses often factor in weekly one-to-one meetings with a personal tutor to assess learners' progress and general well-being, or to give feedback on work. Vision can be used as a highly personalised framework in these meetings for both goal-setting and appraisal.

Teachers and learners can work together in partnership, to envisage alternative future scenarios, to create the Ideal L2 Self, and to plan strategies to work towards this through an individualised Ideal Self Action Plan. These sessions can also aim to make the vision more vivid and elaborate by assessing the imagery ability of the learner, their preferred sensory style and imagery perspective. Based on this information, imagery skills can be targeted and strengthened through practice and training.

Vision-based coaching can help learners navigate their learning journey more effectively, by mapping out the journey and setting step-by-step goals to actualise the vision. According to Markus and Nurius (1986), for possible selves to create impetus, they need to be translated into visions with specific plans and strategies through 'elaboration'. In vision-based coaching, this elaboration is possible, as meetings can focus on both outcome imagery, which involves envisioning the end state, and process imagery, which anticipates intermediate obstacles.

Process visualisation is essential to ensure that the vision is translated into a clear, actionable story, and may help to address a concern highlighted in the current research, where some participants experienced their imagined visions as akin to dreams or fantasies, leading to disappointment. This resonates with the finding of a recent possible self intervention in the

L2 field in which learners, upon visualising their professional Ideal L2 Selves, viewed them as unattainable 'dreams', 'fantasies', or 'creations' (Machin, 2023, p. 5), specifically citing that their English would never reach a standard sufficient for them to accomplish these visions. For real plausibility therefore, process visualisation is just as important as outcome visualisation and coaching can be used at interim appraisals to ensure that the vision is broken down into smaller, targeted goals that are more concrete and short-term and thus easier to imagine than distant goals.

In essence, vision-based coaching aims to implement the stages of the Motivational Vision Intervention programme (Dörnyei & Kubaniyova, 2013), but in a more personalised manner with individual learners, by taking advantage of one-to-one meetings that may be factored into the course. If it is not feasible to hold regular meetings with learners, then a potentially useful approach might be one based on Functional Imagery Training (FIT; Andrade *et al.*, 2016). FIT involves an imagery plan facilitated by a smartphone app that offers reminders, notifications, photos, and audio messages to support imagery practice. Although the FIT app is not available to the general public, there are other similar more freely available apps that could be used (see 8.5.1 for details). Thus, this approach offers potential for implementing vision-based coaching with language learners without the requirement for frequent face-to-face meetings, presenting an avenue for future research.

8.3.2. Vision-inspired Materials

The next section will now present some ideas for designing and integrating vision-based materials into language courses, offering a less structured approach as compared to vision-based coaching. As these suggestions are based largely on the findings of this thesis, they are primarily aimed at EAP contexts, but may also be applicable to other SLA settings.

8.3.2.1 Alignment with Domain Specific Goals

The advantage of shared commonalities across the Ideal L2 Selves of EAP learners is that these can inform the creation of activities that resonate with their visions. The most commonly referenced domains—career, travel, and family—demonstrated how learners expect to use English in their future daily lives, highlighting their motivation at a pragmatic level. EAP courses could leverage this by integrating practical and relevant scenarios aligned with these aspirations. For instance:

Career-Oriented Activities: Incorporate role-plays, case studies, and projects that simulate real-world professional scenarios. Learners can engage in activities like drafting business emails, participating in mock interviews and meetings, or presenting business proposals. Or larger-scale projects where they plan and implement a business enterprise.

Travel and Cultural Immersion: Create activities that prepare learners for using English in travel contexts, such as planning itineraries, practising conversations at airports and hotels, and learning about cultural etiquette. One idea for a travel simulation in the class could be to set up different stations (desks) around the room, each related to a different aspect of holidaying in an English-speaking country. Students could rotate around the various stations, engaging in tasks such as:

- Currency exchange at a travel agency.
- Airport check-in procedures.
- Navigating public transportation systems.
- Booking accommodation.
- Ordering meals at restaurants.
- Asking for directions.

Family Interaction: Develop activities that involve everyday interactions that learners might have with family members in English. This could include:

- Discussing daily routines.
- Helping children with homework.
- Planning family events or vacations.
- Talking about family traditions and cultural practices.

These activities are by no means novel and are likely already present in many courses. However, the purpose of suggesting them here is to optimise engagement with the Ideal L2 Selves articulated by the learner group in this thesis, i.e. university level EAP students in the UK. For other settings, teachers must proactively research and prepare activities that align with the visions of their own learners. Tailoring activities to match learners' specific Ideal L2 Selves should enhance motivation and engagement, as this approach not only supports the academic development of students, but also helps them see the immediate applicability of

their new language skills in achieving their personal and professional visions in the longer term.

8.3.2.2 Alignment with Values

Participants often envisioned their future selves embodying altruistic values, such as kindness towards family and a desire to help others in broader societal contexts. To effectively align language teaching methods and content with these values, teachers can adopt strategies that nurture and reinforce altruism among learners, and enable them to see language proficiency as a tool for meaningful societal contribution. This can be achieved through a variety of activities and projects, both in and out of the classroom, and a few ideas are suggested here:

Discussions: Organise debates, discussions and presentations on a range of issues to engage students critically and empathetically with societal issues. Topics could include public policy, such as healthcare and education reforms; global issues such as immigration and pandemics; or climate change and sustainability. Role-playing activities could be used to simulate scenarios where students must make ethical decisions or solve social problems as policymakers.

Projects: Organise projects where students participate in local environmental initiatives, such as tree planting, community clean-ups, or recycling programs. Develop projects that involve students in charitable activities, such as fundraising for local shelters or creating care packages for those in need.

Volunteering: Encourage students to volunteer at local organisations, such as food banks, animal shelters, or elderly care homes. Teachers can facilitate reflection sessions where students discuss their experiences and the impact of their contributions.

By integrating real-world issues into language teaching, educators foster a sense of purpose beyond academic achievement, aligning with learners' visions of contributing positively to their communities and the world. And even when longer projects are not feasible, fostering a classroom culture that promotes altruism can still be achieved by encouraging mutual helpfulness and support among peers.

8.3.2.3 Focus on Communication Skills

Several participants in the study encountered challenges when envisioning themselves speaking the target language fluently, while others struggled with comprehending fluent speech. This reinforces the critical role of memory in forming mental images. Memory processes, specifically short-term memory (STM) and long-term memory (LTM), are pivotal in constructing mental representations (Kosslyn *et al.,* 2006). Participants, despite being able to create vivid images of places, friends, and family, found it much harder to imagine themselves communicating proficiently in the target language, as they lacked memories of fluent speech.

To counter this, activities that enhance learners' ability to visualise themselves in communication scenarios are recommended. This focus is particularly relevant in the context of this thesis, where achieving fluency in speaking emerged as a primary goal for many participants in their visions of their Ideal L2 Selves. Some techniques that may enhance the effectiveness of imagined communication experiences are recommended:

Observation: Watch videos depicting successful dialogues or everyday interactions in the target language as imagery primes. Encourage learners to observe natural language use, intonation, facial expressions, and other non-verbal cues essential for effective communication. Audio recordings and visual aids such as pictures or infographics can serve as supplementary tools to enhance learners' communication imagery.
With advancements in technology, learners can even create videos of themselves speaking in the L2, providing a personalised approach to visualising language proficiency, and this was an approach that Adolphs *et al.* (2015) explored with language learners by using an app to create avatars.

Mental Rehearsal: Engaging in deliberate mental imagery practice and self-reflection can provide learners with insights into the quality of their own visualisations. This metacognitive approach can enable learners to refine and improve their own imagery. For example, we saw that one participant (Alicia in LSRT; 7.11.1) realised that she struggled to understand the speakers in her vision. She then specifically focused on the mouth movements, intonation, and stress patterns of the speakers in order to improve her understanding. Similarly, other participants noted that visualising facial expressions of speakers enhanced their ability to

understand spoken language, thus indicating a capacity for self-reflection. By tracking progress in a journal, learners can target their own challenges.

Pre-teach key vocabulary: Before engaging in visualisation exercises, learners can practise relevant vocabulary and phrases; akin to the preparatory step in the PPP (Presentation, Practice, Production) methodology commonly used in language teaching. Pre-teaching will enable learners to internalise relevant vocabulary and be better prepared to simulate the desired speaking scenarios in their Ideal L2 Self vision, thereby enhancing fluency and reducing anxiety.

On a final note, it is also important to remind learners that fluency need not necessarily align with their Ideal L2 Self. The pursuit of native-like fluency, often idealised by language learners, can lead to unrealistic expectations and disappointment. Effective communication should be the goal, and it may be helpful to discuss the concept of communicative competence and its practical implications for the visualisation of their Ideal L2 Self.

8.4 Implications of Vision-based Practices for Teachers

In sports, athletes have imagery coaches to help them implement imagery plans, and a recent review of sport imagery studies highlights that coach involvement in imagery practices has increased over the last 25 years, evolving from encouraging and monitoring athletes' imagery use to more active participation in interventions (Ely *et al.,* 2020).

The findings of this thesis underscore that teachers should similarly be more actively involved in helping learners implement vision-based practices. This is particularly pertinent, given that Study 2 indicated that learners initially visualised their Ideal L2 Self effectively with prompts but faced challenges imagining detailed and relevant scenarios independently over time. This has implications for teachers acting as imagery guides or coaches, as learners will likely need assistance and guidance to ensure the relevance of their visualisations is maintained. However, since some learners were able to independently construct highly effective and relevant simulations, this guidance must strike a delicate balance between structured instruction and allowing individuals the freedom to generate personally meaningful details.

While vision-based coaching and materials for training learners' imagery have been discussed, it is crucial to recognise that language teachers themselves will need training and support to effectively guide learners. Challenges such as insufficient self-confidence or expertise to conduct such interventions may arise. Therefore, several strategies are recommended to address these challenges:

Professional Development: Teachers should receive education and training tailored to implement vision-based approaches. This can be achieved through workshops where teachers can experiment with visualisation activities and gain practical experience.

Collaborative Planning: Encouraging teachers to collaboratively plan and implement vision-based practices across different courses and programs can enhance the consistency and impact of these interventions, as well as address confidence issues.

Collaboration with Learners: Teachers can consult with their students to better understand how to actualise their visions. Vision-based motivation aligns with a modern, person-centred pedagogy and represents a shift from traditional, hierarchical student-teacher dynamics towards fostering more personalised relationships. As noted by Sampson (2012, p. 32), "consulting with learners about their self-images might help to empower the course planner."

8.5 Methodological Implications and Suggestions for Future Research

The next section will present practical recommendations for researchers interested in conducting studies on applied imagery with L2 learners.

8.5.1 Operationalising the Vision

Both studies showed that EAP learners were able to visualise an Ideal L2 Self and that visualisation of this future self generated a positive motivational effect. In other words, learners were excited by their visions, and wished for them to become reality. Therefore, the next logical step is to consider how to channel this motivational effect and activate the ideal L2 self so that it leads to actual changes in behaviour. After all, if the vision does not result in practical outcomes on action, what is the purpose of incorporating these practices into the classroom? As highlighted by Vlaeva and Dornyei (2020), vision-oriented programs frequently observe that motivational metrics, such as learner effort and outcomes, show no significant change. Moreover, even when people indicate a willingness to take action, their intentions do not always result in actual behaviour, and studies on implementation intentions

stress the significance of connecting these intentions with concrete action plans (Gollwitzer, 1999; Schacter, 2012).

Future studies should therefore take a longitudinal vision-based coaching view in developing and implementing an action plan with the learner with the aim of operationalising the Ideal L2 Self and examining the impact of vision on behaviour and outcomes. The exploration of apps designed to stimulate and support mental imagery over time holds significant promise for L2 vision interventions. While ideally, L2-specific apps should be developed, currently available free options like Goal in Mind and Fitz, created by Queensland University of Technology, offer existing potential for testing (see doctorlindasolbrig.com/free-stuff). Fitz operates as a straightforward chatbot aimed at promoting imagery practice, whereas Goal in Mind allows users to establish goals, utilise personalised photos and listen to audio imagery, as well as to maintain a record of imagery, and both apps can be downloaded onto smartphones.

8.5.2 Creating and Strengthening the Ideal L2 Self

Study 2 provided valuable insights into techniques for enhancing imagery in language learning. However, recommending one specific technique over others is challenging due to the specific contexts and conditions under which each technique was tested in this small-scale study. For example, if scripted participants had reflected daily on their previous images, their imagery outcomes might have differed. Similarly, a three-day LSRT intervention might have mitigated some of the challenges related to excess detail. Therefore, definitive recommendations on a single technique based on this research are difficult to make.

Nevertheless, the dynamics of imagery among all participants indicated a form of layering in use, whereby new information was continually added throughout the intervention. Even participants following scripted imagery did not visualise the same scenario consistently each day. This is an important finding, and suggests that LSRT is an appropriate approach for learners to generate their visions. Future studies should further explore LSRT, while paying specific attention on managing the complexity of added layers, as well as encouraging the incorporating of emotional components into imagery to enhance meaningfulness.

Another promising approach is the combination of LSRT with an audio script, of which the latter demonstrated particular potential in sustaining positive outcomes in Study 2. Audio scripts enabled learners to engage more deeply in the imagery process by hearing their own voices. Although not done in this study, audio scripts could also provide verbal guidance for reflections on imagery and offer suggestions for enhancing or modifying visualisations by adding or reducing layers. Additionally, maintaining an imagery journal alongside these exercises is recommended, as Study 2 indicated participants often forgot to visualise, and found the journal to be a useful reminder tool and document of progress.

Therefore, combining LSRT with an audio script appears promising for enhancing imagery in language learning contexts, and further exploration and adaptation of these techniques could provide valuable insights into optimising imagery practices. However, any technique that is used needs to allow for variations in its use, by accounting for learners' characteristics and preferences. The 5 Ws (See Figure 14; 7.1) that have been suggested for sport intervention designs, and also used in Study 2 are very useful for this as they are comprehensive in considering these variations. The key to enhancing imagery effectiveness is that imagery content should be personally meaningful and relevant, and thus carefully planned. Alongside planning, it is essential that participants are fully briefed and understand the concept of imagery and ideal selves, and also that they are actively involved in the whole process.

On a practical note, the setting in which imagery techniques are employed must be also carefully considered. Visualisation necessitates an internal focus and minimal external distractions. Therefore, conducting visualisation exercises in a private and quiet space, which also provides emotional safety for expressing and exploring arising feelings, is ideal. It was observed that one participant experienced significantly better imagery scores when working alone, citing classroom distractions as an issue. If conducting the exercises alone is not feasible, learners should be encouraged to close their eyes and use audio scripts to enable privacy and focus.

8.5.3 Taking a Narrative Approach

Erikson (2007) advocates the conceptualisation of possible selves as narratives rather than simply as sensory images or future representations., and from a research perspective, personal narratives are particularly suited to the ideal self. It may be argued that questionnaire

approaches can not capture the story of the ideal self in its entirety, or as a process of the imagination. As McAdams explains, “identity, if you could see it, would look like a story….. complete with setting, scenes, characters, plots, and themes…… that situates a person in the world, integrates a life in time, and provides meaning and purpose.” (2018, p. 361). It is narratives that shape events and selves into a meaningful unity.

If we look closely at the theoretical basis of the ideal self, the narrative is an appropriate framework for the Ideal L2 Self, for two principal reasons. First, the Ideal L2 Self is part of the overall self-concept (Markus & Wurf, 1987), and the self-concept comprises a collection of “different dimensions or selves, namely physical, social, familial, personal, academic, and many other situational ones” (Rubio, 2014, p. 43). As McAdams (2018) points out, one function of a narrative is that it is synchronic; it allows learners to integrate synchronically across the selves that are relevant, thereby bringing a sense of unity and coherence to the self-concept. In this thesis, we have observed the emergence and synchronisation of various selves (e.g., career, social, family, travel, altruistic) and identities (e.g., colleagues, managers, explorers, mothers, fathers, volunteers) within the narrative.

Second, if we think about the ideal self as a process, it inherently possesses a narrative quality. The transformation from the current self to the ideal self involves multiple stages or events. Integrating these stages into a coherent and meaningful story is natural and also crucial for establishing a sense of logical evolution and self-continuity over time. McAdams (2018) labels this kind of integration as diachronic: “showing how the self of yesterday has become the self of today, the very same self that hopes or expects to become a certain kind of (different but still similar) self in the future” (p. 364). Thus, the narrative framework supports "self-unity in both space and time" (ibid) by integrating the components of the Ideal L2 Self both synchronically, across various dimensions of the self, and diachronically, over time.

This approach not only fosters a coherent and continuous self-narrative encompassing past, present, and future selves but also highlights the potential of integrated life narratives in capturing the dynamic interactions within these subsystems. Dörnyei (2020) describes future self guides as "motivational amalgams" or "constellations," emphasising their role in shaping and sustaining motivation. Therefore, narratives offer valuable insights into learners’ motivational self-systems. For instance, Hiver *et al.* (2019) utilised narratives to explore L2 learners’ motivation by having participants recount their L2 learning journeys, identifying

pivotal scenes linked to various stages of language acquisition. Although their study focused primarily on the L2 learning experience and did not explicitly address L2 selves or connections with future L2 selves, narratives provide a robust framework for understanding the holistic and evolving nature of the ideal L2 self, making them valuable for research in this area.

8.5.4 Measuring Ideal L2 Self related Imagery Ability

The second study experimented with measuring the imagery ability of participants, taking a quantitative approach to measuring specific imagery of the Ideal L2 Self, as well as a general imagery ability one through the completion of the Psi questionnaire.

However, when referring to imagery ability as a measure, we are essentially looking at the *quality* of the images that a person is able to generate (Gregg *et al.*, 2016). Can this quality be captured by numerical ratings? Certainly, in this thesis, qualitative information proved more useful in displaying the complexity of imaginative experiences – and it was only by viewing imagery narratives, or obtaining qualitative feedback on the visualisation experience, that we were really able to ascertain participants' ability to imagine a desired future self. The study therefore highlights the importance of focusing on qualitative assessments for a more comprehensive understanding of imagery ability.

That is not to say that quantitative measures can not be useful. However, researchers and practitioners should critically evaluate the validity and reliability of the measures used, considering factors such as individual interpretation and the potential for ceiling effects. This calls for ongoing refinement and validation of quantitative instruments to better capture the complexities of imagery ability in motivational contexts.

8.6 Limitations

The methodological limitations of the individual studies have been addressed in Sections 6.5 and 7.14, respectively; most specifically, with regard to the measurement of imagery ability. However, some final remarks regarding the overarching limitations of the thesis are presented here.

Sample

In researching EAP students at a British university, this thesis has considered the visions of a sub-sample of language learners, one that is not representative of all L2 learners. This in itself is not an issue as long as it is recognised that this group is not representative of all L2 learners and so the results can not be generalised. However, a limitation may be that these students can be considered successful language learners, as evidenced by their enrollment in an international university degree program. Therefore, the findings regarding their ability to generate vivid visions of their future should be interpreted within the context of their academic success.

To address this limitation, further research should explore the vision of diverse groups, including learners from different linguistic backgrounds or those pursuing language learning for more general purposes, as well as younger students in school settings. This is especially important when considering that the majority of L2MSS research has predominantly focused on English learners within university settings (Liu, 2021). A broader scope of investigation would provide a more comprehensive understanding of vision-related phenomena across various learner demographics and educational contexts.

It is also necessary to highlight the fact that 60% and 69% of participants in the first and second studies, respectively, were female, reflecting a gender imbalance. However, it is noted that this distribution aligns with broader trends in higher education in the UK where there tends to be a higher proportion of female students. Statistics for 2021-22 show that 57% of higher education students in 2021/22 were female, and that this was the same in 2016-17 (HESA, 2023). Thus, from a demographic perspective, the sample may be considered representative of the population it aimed to study within the context of British universities.

Method

In terms of methodology, participants in both studies were required to describe their Ideal L2 Self through open-ended writing, with even the audio scripts being initially drafted as written texts. This approach was suitable for the cohort in question, given their enrolment in an EAP course where writing is a fundamental component. However, this methodology is inherently dependent on the participants' writing skills. Not all language learners possess the ability to articulate their thoughts effectively in writing, which could result in data that is brief, unclear,

or lacking in coherence. Consequently, this reliance on written narratives may lead to low-quality data that does not accurately capture the participants' visions.

To address these limitations, alternative approaches to articulating the Ideal L2 Self that accommodate diverse expression capabilities should be considered. These could be more creative, such as through drawings of the ideal self, or by utilising technology to create films or digital stories of the ideal self, or by using vision boards and zines, which allow learners to collate images, words, and other materials to construct a holistic and personal representation of their Ideal L2 Self.

Furthermore, the participant narratives in both studies were coded by the researcher. As Saldana (2016) notes, “coding is not a precise science; it’s primarily an interpretative act” (p. 4). Thus, while efforts were made to maintain consistency in the coding process, the outcomes inevitably reflect my own understanding and theoretical framework applied during analysis.

Lastly, no mention has been made of the actual self. Discrepancy theory (Higgins, 1987) states that in order for the ideal self to exert any motivational effect, a person must be aware of one’s actual or current self, for it is based on this that a discrepancy will be perceived, motivating the taking of action. Could narratives of the actual self and ideal self be used together to analyse self-congruence?

8.7 Conclusion

This thesis contributes to understanding EAP learners' visions and the practical application of imagery in second language acquisition (SLA). It highlights not only the motivational but also the self-regulatory functions of imagery, demonstrating its ability to build confidence, self-belief, and regulate emotions. The novelty of this research lies in its focus on imagery skills, exploring the effects of three techniques on learners' imagery abilities and motivation in an EAP university context.

Through this research, I have come to recognise the importance of considering individual differences in learners' imagery abilities and preferences. Imagery techniques are not universally effective, and tailoring them to suit individual needs is essential. I have also realised that the Ideal L2 Self cannot be viewed in isolation but must be seen as part of a

learner's broader life goals. A holistic approach to understanding learners' self-concept is crucial in supporting their language learning.

Given that both imagery and the Ideal L2 Self are highly personal, it is important for imagery content to be personally meaningful and relevant to each learner. The techniques employed should allow for flexibility, accounting for learners' unique characteristics and preferences. Additionally, it is essential for participants to fully understand the concepts of imagery and the Ideal L2 Self and be actively involved in the process. Learners interested in using imagery could benefit from developing an individualised imagery plan, possibly with the help of a practitioner, to assess their proficiency and create tailored outcomes. While imagery is a valuable tool, its effectiveness is maximised when integrated with other language learning strategies, such as regular practice, immersion, and interaction with native speakers.

A key contribution of this thesis is the recognition that the Ideal L2 Self must be understood in the broader context of the learner's overall self-concept. The L2 Self is intricately linked to the learner's broader life goals, and exploring the Ideal L2 Self requires a holistic approach. The ability to create mental imagery is a unique and valuable skill for language learners, and future research should continue to explore how to optimise its use. It is hoped that in the future, L2 interventions focused on training and improving imagery skills will be developed, along with frameworks and measures to assess imagery ability in the context of L2 vision. I also hope that the insights gained from this research will contribute to developing practical strategies that empower both learners and educators to harness the potential of mental imagery in achieving the Ideal L2 Self.

References

Adolphs, S., Clark, L., Dörnyei, Z., Glover, T., Henry, A., Muir, C., ... & Valstar, M. (2018). Digital innovations in L2 motivation: Harnessing the power of the Ideal L2 Self. *System*, *78*, 173-185.

Ahsen, A. (1984). ISM: The Triple Code Model for imagery and psychophysiology. *Journal of Mental Imagery*.

Al-Hoorie, A. H. (2018). The L2 motivational self system: A meta-analysis. *Studies in Second Language Learning and Teaching*, *8*(4), 721-754.

Al-Hoorie, A. H., & Al Shlowiy, A. (2020). Vision theory vs. goal-setting theory: A critical analysis.

Al-Shehri, A. S. (2009). Motivation and vision: The relation between the ideal L2 self, imagination and visual style. *Motivation, language identity and the L2 self*, 164-171.s.

Amedi, A., Malach, R., & Pascual-Leone, A. (2005). Negative BOLD differentiates visual imagery and perception. *Neuron*, *48*(5), 859-872.

Andersson, E. K., & Moss, T. P. (2011). Imagery and implementation intention: A randomised controlled trial of interventions to increase exercise behaviour in the general population. *Psychology of Sport and Exercise*, *12*(2), 63-70.

Andrade J, May J, Deeprose C, Baugh S-J & Ganis G (2014). 'Assessing vividness of mental imagery: The Plymouth Sensory Imagery Questionnaire' British Journal of Psycology, (4) 547-563

Andrade, J., Khalil, M., Dickson, J., May, J., & Kavanagh, D. J. (2016). Functional Imagery Training to reduce snacking: Testing a novel motivational intervention based on Elaborated Intrusion theory. *Appetite*, *100*, 256-262.

Anuar, N., Cumming, J., & Williams, S. E. (2015). Effects of Applying the PETTLEP Model on Vividness and Ease of Imaging Movement. *Journal of Applied Sport Psychology*, 1-14.

Antonietti, A., & Baldo, S. (1994). Undergraduates' conceptions of cognitive functions of mental imagery. *Perceptual and motor skills*, *78*(1), 160-162.

Antonietti, A., & Colombo, B. (2011). Mental imagery as a strategy to enhance creativity in children. *Imagination, Cognition and Personality*, *31*(1), 63-77.

Arnetz, B. B., Arble, E., Backman, L., Lynch, A., & Lublin, A. (2013). Assessment of a prevention program for work-related stress among urban police officers. *International archives of occupational and environmental health*, *86*, 79-88.

Arp, R. (2005). Scenario visualization: One explanation of creative problem solving. *Journal of Consciousness Studies*, *12*(3), 31-60.

Atienza, F., Balaguer, I., & Garcia-Merita, M. A. (1994). Factor analysis and reliability of the Movement Imagery Questionnaire. *Perceptual and Motor Skills,* 78, 1323 – 1328.

Baddeley, A. (2003). Working memory: looking back and looking forward. *Nature reviews neuroscience*, *4*(10), 829-839.

Baddeley, A. (2007). *Working memory, thought, and action* (Vol. 45). OuP Oxford.

Baddeley, A. D., & Andrade, J. (2000). Working memory and the vividness of imagery. *Journal of experimental psychology: general*, *129*(1), 126.

Bailey, M. (2014). Sports visualization: how to imagine your way to success (ONLINE) Available at http://www.telegraph.co.uk/men/active/10568898/Sports-visualisation-how-to-imagine-your-way-to-success.html (Accessed 26 January 2016)

Barsade, S. G., & O'Neill, O. A. (2014). What's love got to do with it? A longitudinal study of the culture of companionate love and employee and client outcomes in a long-term care setting. *Administrative science quarterly*, *59*(4), 551-598.

Batson, C. D. (2010). *Altruism in humans*. Oxford University Press.

Baumeister, R.F. (Ed.) (1999). The Self in Social Psychology. Philadelphia, PA: Psychology Press (Taylor & Francis)

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional children*, *73*(3), 264-287.

Bergmann, J., Genç, E., Kohler, A., Singer, W., & Pearson, J. (2016). Smaller primary visual cortex is associated with stronger, but less precise mental imagery. *Cerebral cortex*, *26*(9), 3838-3850.

Betts, G. H. (1909). The distribution and functions of mental imagery. New York: Columbia University

Blackwell, S. E., Browning, M., Mathews, A., Pictet, A., Welch, J., Davies, J & Holmes, E. A. (2015). Positive imagery-based cognitive bias modification as a web-based treatment tool for depressed adults: a randomized controlled trial. *Clinical Psychological Science*, *3*(1), 91-111.

Blackwell, S. E. (2021). Mental imagery in the science and practice of cognitive behaviour therapy: Past, present, and future perspectives. *International Journal of Cognitive Therapy*, *14*(1), 160-181.

Blazhenkova, O. (2016). Vividness of object and spatial imagery. *Perceptual and Motor Skills,* 122, 490-508.

Blazhenkova, O., Kozhevnikov, M., & Motes, M. (2006). Object-spatial imagery: a new self‐ report imagery questionnaire. *Applied Cognitive Psychology*, 20, 239-263.

Blazhenkova, O., & Kozhevnikov, M. (2010). Visual-object ability: A new dimension of nonverbal intelligence. *Cognition*, 117, 276-301. 99

Blazhenkova, O., & Kozhevnikov, M. (2016). Types of creativity and visualization in teams of different educational specialization. *Creativity Research Journal,* 28, 123-135.

Boo, Z., Dörnyei, Z., & Ryan, S. (2015). L2 motivation research 2005–2014: Understanding a publication surge and a changing landscape. *System*, *55*, 145-157.

Boone, W., & Piccinini, G. (2016). The cognitive neuroscience revolution. *Synthese*, *193*, 1509-1534.

Borst, G., & Kosslyn, S. M. (2008). Visual mental imagery and visual perception: Structural equivalence revealed by scanning processes. *Memory & cognition*, *36*(4), 849-862.

Brown, D. (1980), A Life-Planning Workshop for High School Students. *Vocational Guidance Quarterly,* 29: 77–83.

Brown, L. V. (2007). *Psychology of motivation*. Nova Publishers.

Boyatzis, R. E. (2006). An overview of intentional change from a complexity perspective. *Journal of management development*, *25*(7), 607-623.

Boyatzis, R. E., Rochford, K., & Taylor, S. N. (Eds.). (2015). *The impact of shared vision on leadership, engagement, and organizational citizenship*. Frontiers Media SA.

Bridge, H., Harrold, S., Holmes, E. A., Stokes, M., & Kennard, C. (2012). Vivid visual mental imagery in the absence of the primary visual cortex. *Journal of neurology*, *259*, 1062-1070.

Brogaard, B., & Gatzia, D. E. (2017). Unconscious Imagination and the Mental Imagery Debate. *Frontiers in psychology*, *8*, 799.

Burns, A., & Edwards, E. (2010). Introducing innovation through action research in an Australian national programme: experiences and insights. *the continuing professional development of English language teachers*, 65.

Bruner, J. (1987). Life as narrative. Social Research, 54(1), 11–32.

Calmels, C., Holmes, P., Berthoumieux, C., & Singer, R. N. (2004). The development of movement imagery vividness through a structured intervention in softball. Journal of Sport Behaviour, 27, 307–322.

Caruso, E. M., & Gino, F. (2011). Blind ethics: Closing one's eyes polarizes moral judgments and discourages dishonest behavior. *Cognition*, *118*(2), 280-285.

Casey, M. B., Nuttall, R. L., & Pezaris, E. (1997). Mediators of gender differences in mathematics college entrance test scores: a comparison of spatial skills with internalized beliefs and anxieties. *Developmental psychology*, *33*(4), 669.

Caspers, S., Amunts, K., & Zilles, K. (2012). Posterior parietal cortex: multimodal association cortex. In *The human nervous system* (pp. 1036-1055). Academic Press.

Ceja, C. R., & Franconeri, S. L. (2023). Difficulty limits of visual mental imagery. *Cognition*, *236*, 105436.

Chan, L. (2014). 19 Effects of an Imagery Training Strategy on Chinese University Students' Possible Second Language Selves and Learning Experiences. *The impact of self-concept on language learning*, *79*, 357.

Chan, L. (2016). The dynamic interplay of the ideal self, mental imagery and context: A language learner's journey of success. In J. King, *Context and the learner in second language learning* (pp. 29-46). Basingstoke, UK: Palgrave Macmillan.

Chavez, R. A. (2016). Imagery as a core process in the creativity of successful and awarded artists and scientists and its neurobiological correlates. *Frontiers in psychology*, *7*, 172408.

Chen, X., Lake, J., & Padilla, A. M. (2020). Self-views and positive psychology constructs among second language learners in Japan, Taiwan, and the United States. *Frontiers in Psychology*, *11*, 2176.

Collet, C., Louis, M. & Guillot, A. (2011). Differences in motor imagery times during aroused and relaxed conditions. *Journal of Cognitive Psychology*, *23*(3), 374-382.

Conway, M., Meares, K., & Standart, S. (2004). Images and goals. *Memory*, *12*(4), 525-531.

Cornil, Y., & Chandon, P. (2016). Pleasure as a substitute for size: How multisensory imagery can make people happier with smaller food portions. *Journal of Marketing Research*, *53*(5), 847-864.

Cooley, S. J., Williams, S. E., Burns, V. E., & Cumming, J. (2013). Methodological variations in guided imagery interventions using movement imagery scripts in sport: A systematic review. *Journal of Imagery Research in Sport and Physical Activity*, *8*(1), 13-34.

Crow, G., & Andrews, M. (2019). Biographical interviews and imagined futures essay writing: users of two methods in conversation. *International Journal of Social Research Methodology*, *22*(6), 557-569.

Csizér, K. (2019). The L2 motivational self system. *The Palgrave handbook of motivation for language learning*, 71-93.

Csizer, K., and J. Kormos. (2009). *Learning experiences, selves and motivated learning behaviour: A comparative analysis of structural models for Hungarian secondary and university learners of English*. In Motivation, language identity and the L2 self, ed. Z. Dörnyei and E. Ushioda, 98_119. Clevedon: Multilingual Matters.

Cui, X., Jeter, C.B., Yang, D., Montague, P.R. and Eagleman, D.M., 2007. Vividness of mental imagery: individual variability can be measured objectively. *Vision research*, *47*(4), pp.474-478.

Cumming, J., Cooley, S. J., Anuar, N., Kosteli, M. C., Quinton, M. L., Weibull, F., & Williams, S. E. (2017). Developing imagery ability effectively: A guide to layered stimulus response training. *Journal of Sport Psychology in Action*, *8*(1), 23-33.

Cumming, J., & Eaves, D. L. (2018). The Nature, Measurement, and Development of Imagery Ability. *Imagination, Cognition and Personality*, *37*(4), 375–393.

Cumming, J., & Ramsey, R. (2008). Imagery interventions in sport. In *Advances in applied sport psychology* (pp. 15-46). Routledge.

D'Argembeau, A., & Van der Linden, M. (2006). Individual differences in the phenomenology of mental time travel: The effect of vivid visual imagery and emotion regulation strategies. *Consciousness and cognition*, *15*(2), 342-350.

Decety, J., & Lamm, C. (2011). 15 empathy versus personal distress: Recent evidence from social neuroscience. *The social neuroscience of empathy*, 199.

Decety, J., & Michel, F. (1989). Comparative analysis of actual and mental movement times in two graphic tasks. *Brain and cognition*, *11*(1), 87-97.

Decety, J., & Jeannerod, M. (1995). Mentally simulated movements in virtual reality: does Fitt's law hold in motor imagery?. *Behavioural brain research*, *72*(1-2), 127-134.

D'Esposito, M., & Postle, B. R. (2015). The cognitive neuroscience of working memory. *Annual review of psychology*, *66*(1), 115-142.

D'Esposito, M. (2007). From cognitive to neural models of working memory. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *362*(1481), 761-772.

Dewey, J. (1897). My Pedagogic Creed. *School Journal, 54*(January), 77–80. Available at: http://dewey.pragmatism.org/creed.htm. Accessed 10 Mar 2018.

Diener, E., & Seligman, M. E. (2002). Very happy people. *Psychological science*, *13*(1), 81-84.

Dijkstra, N., Bosch, S. E., & van Gerven, M. A. (2017). Vividness of visual imagery depends on the neural overlap with perception in visual areas. *Journal of Neuroscience*, *37*(5), 1367-1373.

Dijkstra, N., Zeidman, P., Ondobaka, S., van Gerven, M. A., & Friston, K. (2017). Distinct top-down and bottom-up brain connectivity during visual perception and imagery. *Scientific reports*, *7*(1), 5677.

Di Rienzo, F., Debarnot, U., Daligault, S., Saruco, E., Delpuech, C., Doyon, J., ... & Guillot, A. (2016). Online and offline performance gains following motor imagery practice: a comprehensive review of behavioral and neuroimaging studies. *Frontiers in human neuroscience*, *10*, 315.

Donald, J. N., Sahdra, B. K., Van Zanden, B., Duineveld, J. J., Atkins, P. W., Marshall, S. L., & Ciarrochi, J. (2019). Does your mindfulness benefit others? A systematic review and meta‐analysis of the link between mindfulness and prosocial behaviour. *British Journal of Psychology*, *110*(1), 101-125.

Dörnyei, Z. (2009). The L2 motivational self system. *Motivation, language identity and the L2 self*, *36*(3), 9-11.

Dornyei, Z. (2014). Future self-guides and vision. *The impact of self-concept on language learning*, *79*, 7.

Dörnyei, Z. (2017). Conceptualizing learner characteristics in a complex, dynamic world. *Complexity theory and language development: In celebration of Diane Larsen-Freeman*, *48*, 79-97.

Dörnyei, Z. (2019). Towards a better understanding of the L2 learning experience, the Cinderella of the L2 motivational self system. *Studies in Second Language Learning and Teaching*, 9(1), 19– 30.

Dörnyei, Z. (2020). From integrative motivation to directed motivational currents: The evolution of the understanding of L2 motivation over three decades. In M. Lamb, K. Csizér, A. Henry & S. Ryan (Eds.), Palgrave Macmillan handbook of motivation for language learning (pp. 39-69). Basingstoke: Palgrave.

Dörnyei, Z., & Chan, L. (2013). Motivation and vision: An analysis of future L2 self images, sensory styles, and imagery capacity across two target languages. *Language learning*, *63*(3), 437-462.

Dörnyei, Z., Henry, A., & Muir, C. (2016). Motivational Currents in Language Learning: Frameworks for Focused Interventions. New York & Abingdon, UK: Routledge.

Dörnyei, Z., & Kubanyiova, M. (2014). Motivating learners, motivating teachers: Building vision in the language classroom. Cambridge: Cambridge University Press.

Dörnyei, Z., & Ryan, S. (2015). L2 motivation research 2005-2014: Understanding a publication surge and a changing landscape. System, 55, 147–157.

Dörnyei, Z., & Ushioda, E. (2009). Motivation, language identity and the L2 self. Bristol, UK: Multilingual Matters.

Dörnyei, Z., & Ushioda, E. (2011). Teaching and researching motivation (2nd ed.). Harlow, UK: Longman.

Eddy, J. K., & Glass, A. L. (1981). Reading and listening to high and low imagery sentences. *Journal of Verbal Learning and Verbal Behavior*, *20*(3), 333-345.

Ely, F., Munroe-Chandler, K., O, J. & McCullagh, P. (2020). The practice of imagery: a review of 25 Years of applied sport imagery recommendations: Journal of Imagery Research in Sport and Physical Activity. *Journal of Imagery Research in Sport and Physical Activity*, *15*(1)..

Erikson, M. G. (2007). The meaning of the future: Toward a more specific definition of possible selves. *Review of general psychology*, *11*(4), 348-358.

Feltz, D., & Landers, D. M. (1983). The effects of mental practice on motor skill learning and performance: a meta-analysis. J Sport Psychol 5: 25-57.

Fezler, W. (1989) Creative Imagery: How to Visualize in All Five Senses. New York: Simon & Schuster.

Finke, R. A., & Pinker, S. (1983). Directional scanning of remembered visual patterns. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *9*(3), 398.

Fukada, Y., Fukuda, T., Falout, J., & Murphey, T. (2011). Increasing motivation with possible selves. In *JALT2010 conference proceedings* (pp. 337-349).

Gabryś-Barker, D. (2011). Introspection in research on foreign language teaching and learning.

Gaesser, B., & Schacter, D. L. (2014). Episodic simulation and episodic memory can increase intentions to help others. *Proceedings of the National Academy of Sciences*, *111*(12), 4415-4420.

Galton, F. (1880). Statistics of mental imagery. *Mind*, *5*(19), 301-318.

Ganis, G. (2013). Visual Mental Imagery. In *Multisensory imagery* (pp. 9-28). Springer New York.

Ganis, G. (2020). 24 Imagination and Moral Cognition. *The Cambridge handbook of the imagination*, 390.

Ganis, G., Thompson, W. L., & Kosslyn, S. M. (2004). Brain areas underlying visual mental imagery and visual perception: an fMRI study. *Cognitive Brain Research*, *20*(2), 226-241.

Garza, D. L., & Feltz, D. L. (1998). Effects of selected mental practice on performance, self-efficacy, and competition confidence of figure skaters. *The Sport Psychologist*, *12*(1), 1-15.

Gawain, S. (1978). Creative Visualisation New World Library.

Gergen, K. J., & Gergen, M. M. (1988). Narrative and the self as relationship. In *Advances in experimental social psychology* (Vol. 21, pp. 17-56). Academic Press.

Gerler, E. R., & Danielson, H. A.. (1984). The Quieting Reflex and Success Imagery. *Elementary School Guidance & Counseling*, *19*(2), 152–155.

Giacobbi, P. R., Jr, Stabler, M. E., Stewart, J., Jaeschke, A. M., Siebert, J. L., & Kelley, G. A. (2015). Guided Imagery for Arthritis and Other Rheumatic Diseases: A Systematic Review of Randomized Controlled Trials. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, *16*(5), 792–803.

Gregersen, T. (2019). Aligning positive psychology with language learning motivation. *The Palgrave handbook of motivation for language learning*, 621-640.

Eddy, J. K., & Glass, A. L. (1981). Reading and listening to high and low imagery sentences. *Journal of Verbal Learning and Verbal Behavior*, *20*(3), 333-345.

Gick, M. L., & Lockhart, R. S. (1995). Cognitive and affective components of insight. In R. J. Sternberg & J. E. Davidson (Eds.), *The nature of insight* (p. 197–228). The MIT Press.

Gilbert, A. N., Crouch, M., & Kemp, S. E. (1998). Olfactory and visual mental imagery. *Journal of Mental Imagery*, 22, 137–146.

Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational evaluation and policy analysis*, *11*(3), 255-274.

Gregg, M. J., & Clark, T. (2007). Theoretical and practical applications of mental imagery.

Gregg, M., & Hall, C. (2006). Measurement of motivational imagery abilities in sport. *Journal of Sports Sciences*, *24*(9), 961-971.

Gregg, M. J., Jenny, O., & Hall, C. R. (2016). Examining the relationship between athletes' achievement goal orientation and ability to employ imagery. *Psychology of Sport and Exercise*, *24*, 140-146.

Grey, N. & Holmes, E.A. (2008). 'Hotspots' in trauma memories in the treatment of post-traumatic stress disorder: A replication. Memory, 16(7), 788–796.

Hadamard, J. (1945). The psychology of invention in the mathematical field. Princeton, NJ: Princeton University Press.

Hadfield, J., & Dörnyei, Z. (2013). Motivating learning. Harlow: Longman.

Hall, C. R. (1998). Measuring imagery abilities and imagery use. *Advances in sport and exercise psychology measurement*, 165-172.

Hamilton, K., Keech, J. J., Peden, A. E., & Hagger, M. S. (2019). Protocol for developing a mental imagery intervention: a randomised controlled trial testing a novel implementation imagery e-health intervention to change driver behaviour during floods. *BMJ open*, *9*(2), e025565.

Hanton, S., Mellalieu, S. D., & Hall, R. (2004). Self-confidence and anxiety interpretation: A qualitative investigation. Psychology of Sport and Exercise, 5, 477–495. doi:10.1016/S1469-0292(03)00040-2

Harwood, C., Cumming, J., & Hall, C. (2003). Imagery use in elite youth sport participants: reinforcing the applied significance of achievement goal theory. Research Quarterly for Exercise and Sport, 74, 292e300.

Harwood, C., Cumming, J., & Fletcher, D. (2004). Motivational profiles and psychological skills use within elite youth sport. Journal of Applied Sport Psychology, 16, 318e332.

Hazler, R. J. and Hipple, T. E. (1981), The Effects of Mental Practice on Counseling Behaviors. Counselor Ed & Supervision, 20: 211–218. doi: 10.1002/j.1556-6978.1981.tb01649.x

Haustein, S., Vellino, A., & D'Angiulli, A. (2020). Insights from a bibliometric analysis of vividness and its links with consciousness and mental imagery. *Brain Sciences*, *10*(1), 41.

Henry, A. (2013). Digital games and ELT: Bridging the authenticity gap. In E. Ushioda (Ed.), International perspectives on motivation (pp. 133-155). Basingstoke, UK: Palgrave Macmillan.

Henry, A. (2015). The dynamics of possible selves. *Motivational dynamics in language learning*, 83-94.

Henry, A. (2022). Goal self-concordance and motivational sustainability. *Researching Language Learning Motivation: A Concise Guide*, 61.

Henry, A., Davydenko, S., & Dörnyei, Z. (2015). The anatomy of directed motivational currents: Exploring intense and enduring periods of L2 motivation. The Modern Language Journal, 99(2), 329-345.

Henry, A., & Liu, M. (2023). Can L2 motivation be modelled as a self-system? A critical assessment. *System*, *119*, 103158.

Henry, A., Thorsen, C., & Uztosun, M. S. (2023). Exploring language learners' self-generated goals: Does self-concordance affect engagement and resilience?. *System*, *112*, 102971.

HESA (2019) *Where do HE students come from?* Available https://www.hesa.ac.uk/data-and-analysis/students/where-from. (accessed 16 January 2019)

HESA(2023). Higher Education Student Statistics: UK, 2021/22 Available at https://www.hesa.ac.uk/data-and-analysis/statistical-first-releases?date_filter%5Bvalue%5D%5Byear%5D=&topic%5B%5D=4 (accessed 14 Nov 2023)

Hessel, G. (2015). From vision to action: Inquiring into the conditions for the motivational capacity of ideal second language selves. *System*, *52*, 103-114.

Higgins, E.T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, 94, 319_340.

Hiver, P., Zhou, S. A., Tahmouresi, S., Sang, Y., & Papi, M. (2020). Why stories matter: Exploring learner engagement and metacognition through narratives of the L2 learning experience. *System*, *91*, 102260.

Höchli, B., Brügger, A., & Messner, C. (2018). How focusing on superordinate goals motivates broad, long-term goal pursuit: A theoretical perspective. *Frontiers in psychology*, *9*, 1879.

Hock, M. F., Deshler, D. D., & Schumaker, J. B. (2006). Enhancing student motivation through the pursuit of possible selves. *Possible selves: Theory, research and applications*, 205-221.

Holmes, E. A., Mathews, A., Mackintosh, B., & Dalgleish, T. (2008). The causal effect of mental imagery on emotion assessed using picture-word cues. *Emotion*, *8*(3), 395.

Holmes, E. A., & Mathews, A. (2010). Mental imagery in emotion and emotional disorders. *Clinical psychology review*, *30*(3), 349-362.

Holmes, E. A., Blackwell, S. E., Burnett Heyes, S., Renner, F., & Raes, F. (2016). Mental imagery in depression: Phenomenology, potential mechanisms, and treatment implications. *Annual review of clinical psychology*, *12*, 249-280.

Holmes, P. S., & Collins, D. J. (2001). The PETTLEP approach to motor imagery: A functional equivalence model for sport psychologists. *Journal of Applied Sport Psychology,* 8, 60–83.

Howard, A. R. (2015). Coaching to vision versus coaching to improvement needs: a preliminary investigation on the differential impacts of fostering positive and negative emotion during real time executive coaching sessions. *Frontiers in psychology*, *6*, 455.

Hume, D. (2000). *A treatise of human nature*. Oxford University Press.

Hussey, E. P., Smolinsky, J. G., Piryatinsky, I., Budson, A. E., & Ally, B. A. (2012). Using mental imagery to improve memory in patients with Alzheimer disease: trouble generating or remembering the mind's eye?. *Alzheimer Disease & Associated Disorders*, *26*(2), 124-134.

Guillot, A., & Collet, C. (Eds.). (2010). *The neurophysiological foundations of mental and motor imagery*. Oxford University Press.

Insel, T. R. (1997). A neurobiological basis of social attachment. *American Journal of Psychiatry*, *154*(6), 726-735.

Isaac, A. R., Marks, D. F., & Russell, D. G. (1986). An instrument for assessing imagery of movement. The vividness of movement imagery questionnaire. Journal of Mental Imagery, 10,23–30.

Isenman, L. MENTAL IMAGERY AND INTUITION.

Jacobs, C., Schwarzkopf, D. S., & Silvanto, J. (2018). Visual working memory performance in aphantasia. *Cortex*, *105*, 61-73.

Jeannerod, M. (1995). Mental imagery in the motor context. *Neuropsychologia*, *33*(11), 1419-1432.

Jeannerod, M. (2006). *Motor Cognition*. New York, NY: Oxford University Press.

Ji, J. L., Kavanagh, D. J., Holmes, E. A., MacLeod, C., & Di Simplicio, M. (2019). Mental imagery in psychiatry: conceptual & clinical implications. *CNS spectrums*, *24*(1), 114-126.

Johnson, S. L. (2009). *Therapist's guide to posttraumatic stress disorder intervention*. Academic Press.

Kaiser, A., Feldhusen, B., & Fordinal, B. (2013, January). Vision development as a knowledge creating process. In *2013 46th Hawaii International Conference on System Sciences* (pp. 3593-3602). IEEE.

Kavanagh, D. J., Andrade, J. & May, J. Imaginary relish and exquisite torture: the elaborated intrusion theory of desire. *Psychol. Rev.* 112, 446–467 (2005).

Kelly, R. E., Mansell, W., & Wood, A. M. (2015). Goal conflict and well-being: A review and hierarchical model of goal conflict, ambivalence, self-discrepancy and self-concordance. *Personality and Individual Differences*, *85*, 212-229.

Keogh, R., & Pearson, J. (2011). Mental imagery and visual working memory. *PloS one*, *6*(12), e29221.

Keogh, R., & Pearson, J. (2018). The blind mind: No sensory visual imagery in aphantasia. *Cortex*, *105*, 53-60.

Keogh, R., Bergmann, J., & Pearson, J. (2020). Cortical excitability controls the strength of mental imagery. *elife*, *9*, e50232.

Kim, J., Lee, S., Park, K., Hong, I., Song, B., Son, G., ... & Choi, S. (2007). Amygdala depotentiation and fear extinction. *Proceedings of the National Academy of Sciences*, *104*(52), 20955-20960.
Kim, T.-Y. (2009). Korean elementary school students' perceptual learning style, ideal L2 self, and motivated behaviour. Korean Journal of English Language and Linguistics, 9(3), 261-286.

Kim, Y.-K., & Kim, T.-Y. (2011). The effect of Korean secondary school students' perceptual learning styles and ideal L2 self on motivated L2 behavior and English proficiency. Korean Journal of English Language and Linguistics, 11(1), 21-42.

Knauff, M., Kassubek, J., Mulack, T. & Greenlee, M. W. Cortical activation evoked by visual mental imagery as measured by fMRI. *Neuroreport* 11, 3957–3962 (2000).

Knäuper, B., McCollam, A., Rosen-Brown, A., Lacaille, J., Kelso, E., & Roseman, M. (2011). Fruitful plans: Adding targeted mental imagery to implementation intentions increases fruit consumption. *Psychology and Health*, *26*(5), 601-617.

Komesu, Y., Urwitz-Lane, R., Ozel, B., Lukban, J., Kahn, M., Muir, T., ... & Rogers, R. (2009). Does mental imagery prior to cystoscopy make a difference? A randomized controlled trial. *American journal of obstetrics and gynecology*, *201*(2), 218-e1.

Kosslyn SM (1973) Scanning visual images: Some structural implications. Percept Psychophys 14(1):90–94.

Kosslyn, S. M. (1975). Information representation in visual images. Cognitive Psychology, 7(3), 341–370.

Kosslyn, S. M. (1980). *Image and mind*. Harvard University Press.

Kosslyn, S. M. (1996). *Image and brain: The resolution of the imagery debate*. MIT press.

Kosslyn, S. M., Behrmann, M., & Jeannerod, M. (1995). The cognitive neuroscience of mental imagery. *Neuropsychologia, 33*(11), 1335–1344.

Kosslyn, S. M., Ball, T. M., & Reiser, B. J. (1978). Visual images preserve metric spatial information—Evidence from studies of image scanning. Journal of Experimental Psychology: Human Perception and Performance, 4(1), 47–60.

Kosslyn, S. M., Cave, C. B., Provost, D. A., & Von Gierke, S. M. (1988). Sequential processes in image generation. Cognitive Psychology, 20(3), 319–343.

Kosslyn, S. M., Ganis, G., & Thompson, W. L. (2001). Neural foundations of imagery. Nature Reviews Neuroscience, 2(9), 635–642.

Kosslyn, S. M., Thompson, W. L., & Ganis, G. (2006). *The case for mental imagery*. Oxford University Press.

Kosslyn, S. M., Margolis, J. A., Barrett, A. M., Goldknopf, E. J., & Daly, P. F. (1990). Age differences in imagery abilities. Child Development, 61(4), 995–1010.

Kosslyn, S. M., Murphy, G. L., Bemesderfer, M. E., & Feinstein, K. J. (1977). Category and continuum in mental comparisons. Journal of Experimental Psychology-General, 106(4), 341–375, http://dx.doi.org/10.1037//0096-3445.106.4.341.

Kosslyn, S. M., & Thompson, W. L. (2003). When is early visual cortex activated during visual mental imagery?. *Psychological bulletin*, *129*(5), 723.

Kosslyn, S. M., Thompson, W. L., Shephard, J. M., Ganis, G., Bell, D., Danovitch, J., et al. (2004). Brain rCBF and performance in visual imagery tasks: Common and distinct processes. European Journal of Cognitive Psychology, 16(5), 696–716,

Lawrence, S. J., Formisano, E., Muckli, L., & de Lange, F. P. (2019). Laminar fMRI: Applications for cognitive neuroscience. *Neuroimage*, *197*, 785-791.

Lake, J. (2016). Accentuate the positive: Conceptual and empirical development of the positive L2 self and its relationship to L2 proficiency. *Positive psychology in SLA*, 237-257.

Lang, P.J. (1979). A bio-informational theory of emotional imagery. Psychophysiology, 16, 495–512. PubMed doi:10.1111/j.1469-8986.1979.tb01511.x

Lang, P.J., Kozak, M.J., Miller, G.A., Levin, D.N., & McLean, A., Jr. (1980). Emotional imagery: Conceptual structure and pattern of somato-visceral response. Psychophysiology, 17, 179–192. PubMed doi:10.1111/j.1469-8986.1980. tb00133.x

Lazar, S. W., Kerr, C. E., Wasserman, R. H., Gray, J. R., Greve, D. N., Treadway, M. T., ... & Fischl, B. (2005). Meditation experience is associated with increased cortical thickness. *Neuroreport*, *16*(17), 1893-1897.

LeBoutillier, N., & Marks, D. F. (2003). Mental imagery and creativity: A meta‐analytic review study. *British Journal of Psychology*, *94*(1), 29-44.

LeVan, A. (2009). Seeing is believing: the power of visualization. Psychology today. [Online]. Available: http://www.psychologytoday.com/blog/flourish/200912/seeing-is-beli eving-the-power-visualization

Libby, L. K., & Eibach, R. P. (2011). Self-enhancement or self-coherence? Why people shift visual perspective in mental images of the personal past and future. Personality and Social Psychology Bulletin, 37(5), 714-726.

Liu, M. (2024). Mapping the landscape of research on the L2 motivational self system theory (2005–2021): A bibliometric and text network analysis. *System*, *120*, 103180.

Loftus, E. F., & Pickrell, J. E. (1995). The formation of false memories. *Psychiatric annals*, *25*(12), 720-725.

Løvoll, H. S., Røysamb, E., & Vittersø, J. (2017). Experiences matter: Positive emotions facilitate intrinsic motivation. *Cogent Psychology*, *4*(1), 1340083.

Machin E. (2020). Intervening with near-future possible L2 selves: EFL students as peer-to-peer motivating agents during Exploratory Practice. *Language Teaching Research*

Mackay, J. (2014). 20 applications and implications of the L2 motivational self system in a Catalan EFL context. *The impact of self-concept on language learning*, 377-402.

Mackay, J. (2019). An ideal second language self intervention: Development of possible selves in an English as a Foreign Language classroom context. *System*, *81*, 50-62.

MacIntyre, P. D., & Vincze, L. (2017). Positive and negative emotions underlie motivation for L2 learning. *Studies in Second Language Learning and Teaching*, *7*(1), 61-88.

MacIntyre, P. D., Gregersen, T., & Mercer, S. (2019). Setting an agenda for positive psychology in SLA: Theory, practice, and research. *The Modern Language Journal*, *103*(1), 262-274.

MacIntyre, T. E., Moran, A. P., Collet, C., & Guillot, A. (2013). An emerging paradigm: A strength-based approach to exploring mental imagery. *Frontiers in human neuroscience*, *7*, 104.

Mahmoodi, M. H., & Yousefi, M. (2022). Second language motivation research 2010–2019: A synthetic exploration. *The Language Learning Journal*, *50*(3), 273-296.

Marks, D. F. (1999). Consciousness, mental imagery and action. *British journal of psychology*, *90*(4), 567-585.

Marks, D. F. (2019). I am conscious, therefore, I am: Imagery, affect, action, and a general theory of behavior. *Brain sciences*, *9*(5), 107.

Marre, Q., Huet, N., & Labeye, E. (2021). Embodied mental imagery improves memory. *Quarterly Journal of Experimental Psychology*, *74*(8), 1396-1405.

Marshall, B., & Wright, D. J. (2016). Layered stimulus response training versus combined action observation and imagery: Effects on golf putting performance and imagery ability characteristics. *Journal of Imagery Research in Sport and Physical Activity*, *11*(1), 35-46.

Martin, K. A., Moritz, S. E., & Hall, C. R. (1999). Imagery use in sport: A literature review and applied model. The sport psychologist, 13(3), 245-268.

McAdams, D. P. (2018). Narrative Identity: What Is It? What Does It Do? How Do You Measure It? Imagination, Cognition and Personality, 37(3), 359–372.

McAdams, D. P., McLean, K. C. (2013) Narrative identity. Current Directions in Psychological Science 22: 233–238.

McAvinue, L. P., & Robertson, I. H. (2007). Measuring Visual Imagery Ability: A Review. *Imagination, Cognition and Personality*, *26*(3), 191–211.

McDermott, S. (2011). Visionaries. Muhammad Ali and the power of imagination. (ONLINE). Available at http://www.stevemcdermott.com/2011/12/22/visionaries-muhammad-ali-and-the-power-of-imagination/ (Accessed on 26 January 2016)

McMahon, C. E. (1973). Images as motives and motivators: A historical perspective. *The American Journal of Psychology*, 465-490.

McNorgan, C. (2012). A meta-analytic review of multisensory imagery identifies the neural correlates of modality-specific and modality-general imagery. *Frontiers in Human Neuroscience*, *6*, 285.

Meevissen, Y. M., Peters, M. L., & Alberts, H. J. (2011). Become more optimistic by imagining a best possible self: Effects of a two week intervention. *Journal of behavior therapy and experimental psychiatry*, *42*(3), 371-378.

Menary, K., Collins, P. F., Porter, J. N., Muetzel, R., Olson, E. A., Kumar, V., Steinbach, M., Lim, K. O., & Luciana, M. (2013). Associations between cortical thickness and general intelligence in children, adolescents and young adults. *Intelligence*, *41*(5), 597–606.

Mercer, S. (2012). Self-concept: Situating the self. In S. Mercer, S. Ryan, & M. Williams (Eds.), Psychology for language learning (pp. 10-25). Basingstoke, UK: Palgrave Macmillan.

Mercer, S. (2014). The self from a complexity perspective. In S. Mercer & M. Williams (Eds.), Multiple perspectives on the self in SLA (pp. 160-176). Bristol, UK: Multilingual Matters.

Miller, G. A., Levin, D. N., Kozak, M. J., Cook III, E. W., McLean Jr, A., & Lang, P. J. (1987). Individual differences in imagery and the psychophysiology of emotion. *Cognition and emotion*, *1*(4), 367-390.

Milyavskaya, M., Nadolny, D., & Koestner, R. (2014). Where do self-concordant goals come from? The role of domain-specific psychological need satisfaction. *Personality and Social Psychology Bulletin*, *40*(6), 700-711.

Moran, A. (2002). In the mind's eye. *The Psychologist,* 15, 414–415.

Morris, T., Spittle, M., & Watt, A.P. (2005). *Imagery in sport*. Champaign, IL: Human Kinetics

Moskovsky, C., Assulaimani, T., Racheva, S., & Harkins, J. (2016). The L2 motivational self system and L2 achievement: A study of Saudi EFL learners. *The Modern Language Journal*, *100*(3), 641-654.

Moulton, S. T., & Kosslyn, S. M. (2009). Imagining predictions: mental imagery as mental emulation. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *364*(1521), 1273-1280.

Muir, C. (2019). Motivation and projects. *The Palgrave handbook of motivation for language learning*, 327-346.

Newsom, J., Knight, P., & Balnave, R. (2003). Use of mental imagery to limit strength loss after immobilization. *Journal of Sport rehabilitation*, *12*(3), 249-258.

Nicholls, J. G. (1984). Conceptions of ability and achievement motivation. In R. Ames, & C. Ames (Eds.), Research on motivation in education: Vol. 1. *Student motivation* (pp. 39e73). New York: Academic Press

Nordin, S. M., & Cumming, J. (2005). Professional dancers describe their imagery: Where, when, what, why, and how. *The Sport Psychologist*, *19*, 395-416.

Omizo, M. M. (1981) Relaxation training and biofeedback with hyperactive elementary schoolchildren. In *Elementary School Guidance and Counselling, 15, 329-332*

Ørngreen, R., & Levinsen, K. T. (2017). Workshops as a research methodology. *Electronic Journal of E-learning*, 15(1), 70-81.

Oyserman, D., Terry, K., & Bybee, D. (2002). A possible selves intervention to enhance school involvement. Journal of adolescence, 25(3), 313-326.

Oxford, R. L. (2016). Toward a psychology of well-being for language learners: The “EMPATHICS” vision. *Positive psychology in SLA*, *10*, 10-87.

Paivio, A. (1985). Cognitive and motivational functions on imagery in human performance. Canadian Journal of Applied Sport Sciences, 10(4), 22S-28S.

Paivio, A. (1990). *Mental representations: A dual coding approach*. Oxford university press.

Pajares, F., & Kranzler, J. (1995). Self-efficacy beliefs and general mental ability in mathematical problem-solving. *Contemporary educational psychology*, *20*(4), 426-443.

Palmiero, M., Piccardi, L., Nori, R., Palermo, L., Salvi, C., & Guariglia, C. (2016). Creativity and mental imagery. *Frontiers in psychology*, *7*, 223946.

Papi, M. (2010). The L2 motivational self system, L2 anxiety, and motivated behavior: A structural equation modelling approach. *System*, *38*, 467–479.

Papi, M., Bondarenko, A., Mansouri, S., Feng, L., & Jiang, C. (2018). Rethinking L2 motivation: The 2 × 2 model of self-guides. *Studies in Second Language Acquisition*, 40, 1–25.

Passarelli, A. M. (2015). Vision-based coaching: optimizing resources for leader development. *Frontiers in Psychology*, *6*, 128765.

Pearson, J. (2019). The human imagination: the cognitive neuroscience of visual mental imagery. *Nature reviews neuroscience*, *20*(10), 624-634.

Pearson, D.G., Deeprose, C., Wallace-Hadrill, S.M., Heyes, S.B. and Holmes, E.A., (2013). Assessing mental imagery in clinical psychology: A review of imagery measures and a guiding framework. *Clinical Psychology Review*, *33*(1), pp.1-23.

Pearson, J., & Kosslyn, S. M. (2015). The heterogeneity of mental representation: Ending the imagery debate. *Proceedings of the national academy of sciences*, *112*(33), 10089-10092.

Pearson, J., Naselaris, T., Holmes, E. A., & Kosslyn, S. M. (2015). Mental imagery: functional mechanisms and clinical applications. *Trends in cognitive sciences*, *19*(10), 590-602.

Pearson, W. S. (2020). The Effectiveness of Pre‐sessional EAP Programmes in UK Higher Education: A Review of the Evidence. *Review of Education*, *8*(2), 420-447.

Peterson, C. (2006). *A primer in positive psychology*. Oxford university press.

Piaget, J. (1964). The development of mental imagery. In *RE Ripple & VE Rockcastle (Eds.), Piaget Rediscovered: A Report of the Conference on Cognitive Studies and Curriculum Development. Ithaca NY: Cornell University, School of Education*.

Pham, L. B., & Taylor, S. E. (1999). From thought to action: Effects of process- versus outcome based mental simulations on performance. Personality and Social Psychology Bulletin, 25(2), 250-260.

Pietluch, A. (2019). Stimulating educational growth through vision and self-efficacy: a case study of adult users of English as a foreign language. *Crossroads. A Journal of English Studies*, (04 (27)), 58-76.

Polland, M. J. (1996). *Mental imagery in creative problem-solving*. The Claremont Graduate University.

Post, P. G., & Wrisberg, C. A. (2012). A phenomenological investigation of gymnasts' lived experience of imagery. *The Sport Psychologist*, *26*(1), 98-121.

Pylyshyn, Z. W. (1973). What the mind's eye tells the mind's brain: A critique of mental imagery. *Psychological bulletin*, *80*(1), 1.

Pylyshyn, Z. W. (1984). Computation and cognition.

Quinton, M. L., Cumming, J., Gray, R., Geeson, J. R., Cooper, A., Crowley, H., & Williams, S. E. (2014). A PETTLEP imagery intervention with young athletes. *Journal of Imagery Research in Sport and Physical Activity*, *9*(1), 47-59.

Ramnerö, J., & Törneke, N. (2015). On Having a Goal: Goals as Representations or Behavior. *The Psychological record*, *65*, 89–99.

Ranganath, C., & D'Esposito, M. (2005). Directing the mind's eye: prefrontal, inferior and medial temporal mechanisms for visual working memory. *Current opinion in neurobiology*, *15*(2), 175-182.

Renner, F., Murphy, F. C., Ji, J. L., Manly, T., & Holmes, E. A. (2019). Mental imagery as a "motivational amplifier" to promote activities. *Behaviour Research and Therapy*, *114*, 51-59.

Riazi, A. M., & Candlin, C. N. (2014). Mixed-methods research in language teaching and learning: Opportunities, issues and challenges. *Language teaching*, *47*(2), 135-173.

Richardson, A. (2020). *Individual differences in imaging: Their measurement, origins, and consequences*. Routledge.

Richardson, D. C., Griffin, N. K., Zaki, L., Stephenson, A., Yan, J., Curry, T., ... & Devlin, J. T. (2018). Measuring narrative engagement: The heart tells the story. *BioRxiv*, 351148.

Roberts, R., Callow, N., Hardy, L.,Markland, D., & Bringer, J. (2008). Movement imagery ability: Development and assessment of a revised version of the vividness of movement imagery questionnaire. *Journal of Sport & Exercise Psychology*, 30, 200–22

Robin, N., Dominique, L., Toussaint, L., Blandin, Y., Guillot, A., & Le Her, M. (2007). Effect of motor imagery training on service return accuracy in tennis: The role of imagery ability. *International Journal of Sport and Exercise Psychology,* 5(2), 175–186. doi:10.1080/1612197X.2007.9671818

Rodgers, W., Hall, C., & Buckolz, E. (1991). The effect of an imagery training program on imagery ability, imagery use, and figure skating performance. *Journal of Applied Sport Psychology*, 3, 109–125. doi:10.1080/10413209108406438

Roelfsema, P. R., & de Lange, F. P. (2016). Early visual cortex as a multiscale cognitive blackboard. *Annual review of vision science*, *2*(1), 131-151.

Roffe, L., Schmidt, K., & Ernst, E. (2005). A systematic review of guided imagery as an adjuvant cancer therapy. *Psycho‐Oncology*, *14*(8), 607-617.

Rokeach, M. (1973). The nature of human values. New York: Free Press.

Roodin, P. (1983). Imagery: An overlooked ability among the gifted. *In Roeper Review, 5, 5-6*.

Rothenberg, A. (1995). Creative cognitive processes in Kekule's discovery of the structure of the benzene molecule. *The American journal of psychology*, 419-438.

Rubio, F. D. (2014). Self-esteem and self-concept in foreign language learning. *Multiple perspectives on the self in SLA*, *4158*.

Runge, M. S., Cheung, M. W., & D'Angiulli, A. (2017). Meta-analytic comparison of trial-versus questionnaire-based vividness reportability across behavioral, cognitive and neural measurements of imagery. *Neuroscience of Consciousness*, *2017*(1), nix006.

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford publications.

Ryan, S. (2009). Self and identity in L2 motivation in Japan: The ideal L2 self and Japanese learners of English. *Motivation, language identity and the L2 self*, *120*(143), 9781847691293-007.

Ryan, S., & Dörnyei, Z. (2013). The long-term evolution of language motivation and the L2 self. *Fremdsprachen in der Perspektive lebenslangen Lernens*, *14*(1), 89-100.

Safdari, S. (2021). Operationalizing L2 motivational self system: Improving EFL learners' motivation through a vision enhancement program. *Language Teaching Research*, *25*(2), 282-305.

Sagiv, L., Roccas, S., Cieciuch, J., & Schwartz, S. H. (2017). Personal values in human life. *Nature human behaviour*, *1*(9), 630-639.

Sagiv, L., & Schwartz, S. H. (2000). Value priorities and subjective well‐being: Direct relations and congruity effects. *European journal of social psychology*, *30*(2), 177-198.

Saldaña, J. (2016). The coding manual for qualitative researchers (3rd ed.). Thousand Oaks, CA: Sage.

Salvi, C., & Bowden, E. M. (2016). Looking for creativity: Where do we look when we look for new ideas?. *Frontiers in psychology*, *7*, 161.

Sampson, R. (2012). The language-learning self, self-enhancement activities, and self perceptual change. *Language Teaching Research,* 16(3), 317-335.

Saulsman, L. M., Ji, J. L., & McEvoy, P. M. (2019). The essential role of mental imagery in cognitive behaviour therapy: What is old is new again. *Australian Psychologist*, *54*(4), 237-244.

Schilling, C., Kühn, S., Paus, T., Romanowski, A., Banaschewski, T., Barbot, A., ... & Gallinat, J. (2013). Cortical thickness of superior frontal cortex predicts impulsiveness and perceptual reasoning in adolescence. *Molecular Psychiatry*, *18*(5), 624-630.

Schmidt, T. T., & Blankenburg, F. (2019). The somatotopy of mental tactile imagery. *Frontiers in Human Neuroscience*, *13*, 10.

Schröder, T., Stewart, T.C., & Thagard, P. (2014). Intention, Emotion, and Action: A Neural Theory Based on Semantic Pointers. *Cognitive science, 38 5*, 851-80 .

Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of personality and social psychology*, *53*(3), 550.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values?. *Journal of social issues*, *50*(4), 19-45.

Schwartz, S. (2013). Value priorities and behavior: Applying a theory of integrated value systems. In *The psychology of values* (pp. 1-24). Psychology Press.

Schwartz, S. H., & Boehnke, K. (2004). Evaluating the structure of human values with confirmatory factor analysis. *Journal of research in personality*, *38*(3), 230-255.

Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., ... & Konty, M. (2012). Refining the theory of basic individual values. *Journal of personality and social psychology*, *103*(4), 663.

Schultheiss, O. C., & Brunstein, J. C. (1999). Goal imagery: Bridging the gap between implicit motives and explicit goals. *Journal of Personality, 67*(1), 1–38.

Scimeca, J. M., Kiyonaga, A., & D'Esposito, M. (2018). Reaffirming the sensory recruitment account of working memory. *Trends in cognitive sciences*, *22*(3), 190-192.

Segal, H. G. (2006). Possible selves, fantasy distortion, and the anticipated life history: Exploring the role of imagination in social cognition. *Possible selves: Theory, research and applications*, 79-96.

Seli, P., Wammes, J. D., Risko, E. F., & Smilek, D. (2016). On the relation between motivation and retention in educational contexts: The role of intentional and unintentional mind wandering. *Psychonomic bulletin & review*, *23*, 1280-1287.

Seligman, M. E. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Simon and Schuster.

Suess, F., & Rahman, R. A. (2015). Mental imagery of emotions: Electrophysiological evidence. *NeuroImage*, *114*, 147-157.

Sheehan, P. W. (1967). A shortened form of Betts questionnaire upon mental imagery. *Journal of Clinical Psychology*, 23(3), 386–389.

Sheldon, K. M., & Lyubomirsky, S. (2006). How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *The journal of positive psychology*, *1*(2), 73-82.

Sheldon, K. M. (2014). Becoming oneself: The central role of self-concordant goal selection. *Personality and Social Psychology Review*, *18*(4), 349-365.

Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: the self-concordance model. *Journal of personality and social psychology*, *76*(3), 482.

Shepard, R. N., & Feng, C. (1972). A chronometric study of mental paper folding. *Cognitive psychology*, *3*(2), 228-243.

Shepard, R. N., & Metzler, J. (1971). Mental rotation of three-dimensional objects. *Science*, *171*(3972), 701-703.

Simonsmeier, B. A., Andronie, M., Buecker, S., & Frank, C. (2021). The effects of imagery interventions in sports: A meta-analysis. *International Review of Sport and Exercise Psychology*, *14*(1), 186-207.

Simsek, E., & Dörnyei, Z. (2017). Anxiety and L2 self-images: The "anxious self.". *New insights into language anxiety: Theory, research and educational implications*, 51-69.

Siwek, Z., Oleszkowicz, A. & Słowińska, A. Values Realized in Personal Strivings and Motivation, and Meaning in Life in Polish University Students. *J Happiness Stud* 18, 549–573 (2017).

Slimani, M., Tod, D., Chaabene, H., Miarka, B., & Chamari, K. (2016). Effects of Mental Imagery on Muscular Strength in Healthy and Patient Participants: A Systematic Review. *Journal of sports science & medicine*, *15*(3), 434–450.

Skottnik, L., & Linden, D. E. (2019). Mental imagery and brain regulation—new links between psychotherapy and neuroscience. *Frontiers in Psychiatry*, *10*, 482129.

Smith, E. R. (1998). Mental representation and memory. *The handbook of social psychology*, *2*, 391-445.

Smith, D., Holmes, P., Whitemore, L., Collins, D., & Devonport, T. (2001). The effect of theoretically-based imagery scripts on field hockey performance. *Journal of Sport Behavior*, 24, 408–419.

Smyth, A. P., Werner, K. M., Milyavskaya, M., Holding, A., & Koestner, R. (2020). Do mindful people set better goals? Investigating the relation between trait mindfulness, self-concordance, and goal progress. *Journal of Research in Personality*, *88*, 104015.

Somers, Margaret R. And Gloria D. Gibson (1994) 'Reclaiming the Epistemological "Other": Narrrative and the social constitution of identity', in Craig Calhoun (ed.) *Social Theory and the Politics of Identity,* Oxford UK and Cambridge USA: Blackwell, 37-99.

Stopa, L. (Ed.). (2009). *Imagery and the threatened self: Perspectives on mental imagery and the self in cognitive therapy*. Routledge.

Suess, F., & Rahman, R. A. (2015). Mental imagery of emotions: Electrophysiological evidence. *NeuroImage*, *114*, 147-157.

Suica, Z., Behrendt, F., Gäumann, S., Gerth, U., Schmidt-Trucksäss, A., Ettlin, T., & Schuster-Amft, C. (2022). Imagery ability assessments: a cross-disciplinary systematic review and quality evaluation of psychometric properties. *BMC medicine*, *20*(1), 166.

Szpunar, K. K., & Schacter, D. L. (2013). Get real: effects of repeated simulation and emotion on the perceived plausibility of future experiences. *Journal of Experimental Psychology: General*, *142*(2), 323.

Taguchi, T., Magid, M. & Papi, M. (2009). 'The L2 Motivational Self System among Japanese, Chinese and Iranian Learners of English: A Comparative Study'. In Z. Dörnyei and E. Ushioda (eds.) *Motivation, Language Identity and the L2 Self.* Bristol: Multilingual Matters. 66-97.

Taylor, S.E., Pham, L.B., Rivkin, I.D. and Armor, D.A. (1998) Harnessing the imagination: Mental simulation, self-regulation, and coping. *American Psychologist*, 53 (4), 429_439.

Teddlie, C., & Tashakkori, A. (2011). Mixed methods research. *The Sage handbook of qualitative research*, *4*(1), 285-300.

Tellegen, A. (1982). Brief manual for the multidimensional personality questionnaire. *Unpublished manuscript, University of Minnesota, Minneapolis*, 1031-1010.

Thelwell, R. C., & Maynard, I. W. (2003). The effects of a mental skills package on 'repeatable good performance' in cricketers. *Psychology of sport and exercise*, *4*(4), 377-396.

Thompson, A. S., & Vásquez, C. (2015). Exploring motivational profiles through language learning narratives. *The Modern Language Journal*, *99*(1), 158-174.

Todd, R. M., Miskovic, V., Chikazoe, J., & Anderson, A. K. (2020). Emotional objectivity: Neural representations of emotions and their interaction with cognition. *Annual review of psychology*, *71*(1), 25-48.

Tong, F. (2013) Imagery and visual working memory: one and the same? *Trends Cogn. Sci.* 17, 489–490

Town, C, L. (1914). The contribution of visual imagery to verbal thought: a comparative study of seeing and blind subjects. *Illinois Medical Journal, 26, 354-358.*

Tyng, C. M., Amin, H. U., Saad, M., & Malik, A. S. (2017). The Influences of Emotion on Learning and Memory. *Frontiers in psychology*, *8*, 1454.

Ushioda, E. (2011). Language learning motivation, self and identity: Current theoretical perspectives. *Computer assisted language learning*, *24*(3), 199-210.

Ushioda, E. (2020). Researching L2 motivation: Re-evaluating the role of qualitative inquiry, or the 'wine and conversation'approach. *Contemporary language motivation theory*, *60*, 194-211.

Van der Helm, R. (2009). The vision phenomenon: Towards a theoretical underpinning of visions of the future and the process of envisioning. *Futures, 41*, 96-104.

Vasquez, N. A., & Buehler, R. (2007). Seeing future success: Does imagery perspective influence achievement motivation?. *Personality and social psychology bulletin*, *33*(10), 1392-1405.

Vines S. W. (1988). The therapeutics of guided imagery. *Holistic Nursing Practice,* 2, pp. 34-44.

Vasalampi, K., Nurmi, J. E., Jokisaari, M., & Salmela-Aro, K. (2012). The role of goal-related autonomous motivation, effort and progress in the transition to university. *European journal of psychology of education*, *27*, 591-604.

Verplanken, B., & Holland, R. W. (2002). Motivated decision making: effects of activation and self-centrality of values on choices and behavior. *Journal of personality and social psychology*, *82*(3), 434.

Vlaeva, D., & Dörnyei, Z. (2021). Vision enhancement and language learning: A critical analysis of vision-building in an English for Academic Purposes programme. *Language Teaching Research*, *25*(6), 946-971.

Vredeveldt, A., Hitch, G. J., & Baddeley, A. D. (2011). Eyeclosure helps memory by reducing cognitive load and enhancing visualisation. *Memory & cognition*, *39*, 1253-1263.

Wagstaff, G. F., Wheatcroft, J., Cole, J. C., Brunas-Wagstaff, J., Blackmore, V., & Pilkington, A. (2008). Some cognitive and neuropsychological aspects of social inhibition and facilitation. *European Journal of Cognitive Psychology*, *20*(4), 828-846.

Waterman, A. S., Schwartz, S. J., Zamboanga, B. L., Ravert, R. D., Williams, M. K., Bede Agocha, V., ... & Brent Donnellan, M. (2010). The Questionnaire for Eudaimonic Well-Being: Psychometric properties, demographic comparisons, and evidence of validity. *The journal of positive psychology*, *5*(1), 41-61.

Watkins, N. W. (2018). (A) phantasia and severely deficient autobiographical memory: Scientific and personal perspectives. *Cortex*, *105*, 41-52.

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological bulletin*, *98*(2), 219.

Weckbacher, L. M., & Okamoto, Y. (2014). Mental rotation ability in relation to self-perceptions of high school geometry. *Learning and Individual Differences*, *30*, 58-63.

Weibull, F., Cumming, J., Cooley, S. J., Williams, S. E., & Burns, V. E. (2015). Walk this way: A brief exercise imagery intervention increases barrier self-efficacy in women. *Current Psychology*, *34*, 477-490.

Werner, K. M., Milyavskaya, M., Foxen-Craft, E., & Koestner, R. (2016). Some goals just feel easier: Self-concordance leads to goal progress through subjective ease, not effort. *Personality and Individual Differences*, *96*, 237-242.

Wheatley, W. J., Maddox, E. N., Anthony, W. P., & Coe, F. S. (1987). Enhancing education through the use of mental imagery. *Reading improvement*, *24*(3), 150.

Wicken, M., Keogh, R., & Pearson, J. (2019). The critical role of mental imagery in human emotion: Insights from aphantasia. *biorxiv*, 726844.

Willard, R. D. (1977). Breast enlargement through visual imagery and hypnosis. *American Journal of Clinical Hypnosis*, *19*(4), 195-200.

Williams, S. E., Cooley, S. J., Newell, E., Weibull, F., & Cumming, J. (2013). Seeing the difference: Developing effective imagery scripts for athletes. *Journal of Sport Psychology in Action*, *4*(2), 109-121.

Williams, S. E., Cooley, S. J., & Cumming, J. (2013). Layered stimulus response training improves motor imagery ability and movement execution. *Journal of Sport & Exercise Psychology*.

Williams, S. E., & Cumming, J. (2015). Athlete imagery ability: A predictor of confidence and anxiety intensity and direction. *International Journal of Sport and Exercise Psychology*, 1-13.

Willander, J., & Baraldi, S. (2010). Development of a new Clarity of Auditory Imagery Scale. *Behavioral Research Methods*, 42, 785–790. doi:10.3758/BRM.42.3.785

Wilson, C., Smith, D., Burden, A., & Holmes, P. (2010). Participant-generated imagery scripts produce greater EMG activity and imagery ability.*European Journal of Sport Science*, *10*(6), 417-425.

Winlove, C. I., Milton, F., Ranson, J., Fulford, J., MacKisack, M., Macpherson, F., & Zeman, A. (2018). The neural correlates of visual imagery: A co-ordinate-based meta-analysis. *Cortex*, *105*, 4-25.

Wittmann, M. K., Trudel, N., Trier, H. A., Klein-Flügge, M. C., Sel, A., Verhagen, L., & Rushworth, M. F. (2021). Causal manipulation of self-other mergence in the dorsomedial prefrontal cortex. *Neuron*, *109*(14), 2353-2361.

Wright, C. J., & Smith, D. (2009). The effect of PETTLEP imagery on strength performance. *International Journal of Sport and Exercise Psychology*, *7*(1), 18-31.

Wraga, M., & Kosslyn, S. M. (2002). Imagery.

Wurf, E., & Markus, H. (1991). Possible selves and the psychology of personal growth.

Wynd, C. A. (2005). Guided Health Imagery for Smoking Cessation and Long‐Term Abstinence. *Journal of Nursing Scholarship*, *37*(3), 245-250.

You, C., & Chan, L. (2015). The dynamics of L2 imagery in future motivational self-guides. *Motivational dynamics in language learning*, 397-418.

Zander, R. S., & Zander, B. (2002). *The art of possibility: Transforming professional and personal life*. Penguin.

Zatorre, R. J., & Halpern, A. R. (2005). Mental concerts: musical imagery and auditory cortex. *Neuron*, *47*(1), 9-12.

Zeman AZJ, Della Sala S, Torrens LA, Gountouna V-E, McGonigle DJ, Logie RH. 2010. Loss of imagery phenomenology with intact visuo-spatial task performance: a case of 'blind imagination'. *Neuropsychologia* **48**, 145–155. (10.1016/j.neuropsychologia.2009.08.024

Zeman, A., Dewar, M., & Della Sala, S. (2015). Lives without imagery–Congenital aphantasia. *Cortex*, *73*, 378-380.

Zeman, A. (2024). Aphantasia and hyperphantasia: exploring imagery vividness extremes. *Trends in Cognitive Sciences*.

Zittoun, T., & Gillespie, A. (2018). Imagining the collective future: A sociocultural perspective. *Imagining collective futures: Perspectives from social, cultural and political psychology*, 15

Appendices

Appendix A Ethical Consent for Study 1

Faculty of Arts Ethics Approval Form

Researcher name	Saadia Hasan
School/Department	School of English
Project Title	Exploring the Language Learner's Vision: An Insight into the Ideal L2 Self
Date	September 2016
Email address	Saadia.hasan@nottingham.ac.uk

(2) Research aims/questions

Provide a brief summary of the research aims/questions [max 100 words]

Research Questions

What kind of visions do university students have of their Ideal L2 (Second Language Learner) Self?

Are there any differences in their short-term and long-term visions?

What do they 'see' and experience in their visions? Are there any common settings or scenarios?`

(3) Methods

Prospective participants will be provided with information on the project, its aims and methods. They will receive an Information Sheet about the study, and have the opportunity to ask questions about the study, and will also be required to complete consent forms if they are happy to take part.

The data will be collected via one focus group of around 45 minutes, which will be audio recorded. Focus groups will have between 5-8 participants . During the focus group, participants will be introduced to the concept of the ideal self and also visualisation. They will then independently complete 2 writing tasks: the first is a 'goals' tree, on which they write their language learning goals, and the second is a write-up of the details of what they may have visualised (please see the attached focus group guideline form for more details).

Overall, I am hoping to gather data from around 60 participants in total.

Declaration

Signed __ Saadia Hasan

Date ____October 2016

_____

Office use only:

Approved _____Dominic Thompson_____ Date____23/10/16_____

(School Ethics Officer)

Confirmed _____Jen Birks_____ Date____24/10/16_____

(Second School Ethics Officer)

Appendix B Research Project: Information and Consent Form

Exploring the Language Learner's Vision

We all have an idea of what we want to be in the future. When children are asked 'what do you want to be when you grow up?', they might respond with pilot or doctor or ninja or superhero!

I am carrying out some research into what **you**, as a Language Learner would like to be in the future! This research is important because it will tell us more about language students' long-term motivation, and how this motivation can be increased.

If you would like to take part in this research, it will require you to take part in a small group activity lasting between 30-45 minutes. I will give you prior notice of where and when to meet.

The discussions will be audio recorded, for the purpose of analysis. However, after the analysis the audio recording will be deleted. Your data will be confidential and anonymous, and you will not be identified at any time. If at any stage you wish to leave the project that is perfectly fine.

This research is part of my PhD at Nottingham University, and and will only be used for academic research purposes.

Many thanks!

Saadia Hasan

You may contact me at Aexsh14@nottingham.ac.uk or 0771 861 0926

I would like to be involved in this research about language learners' motivation, and am happy to give my consent to take part.

Name: …….

Contact Email:…….

Contact Phone Number: …….

PARTICIPANT CONSENT FORM

University of Nottingham

Project title Enhancing the vividness of the Ideal L2 Self

Researcher's name Saadia Hasan

Supervisor's name Zoltan Dornyei

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.
- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential and anonymous.
- I understand that I may be audio recorded during the interview and will complete a questionnaire.
- I understand that data will be stored electronically on audio files and will be deleted once the study is complete.
- I understand that I may contact the researcher or supervisor if I require further information about the research, and that I may contact the Research Ethics Coordinator of the School of English, University of Nottingham, if I wish to make a complaint relating to my involvement in the research.

Signed …… (research participant)

Print name …… **Date** ……

Contact details

Researcher: aexsh14@nottingham.ac.uk

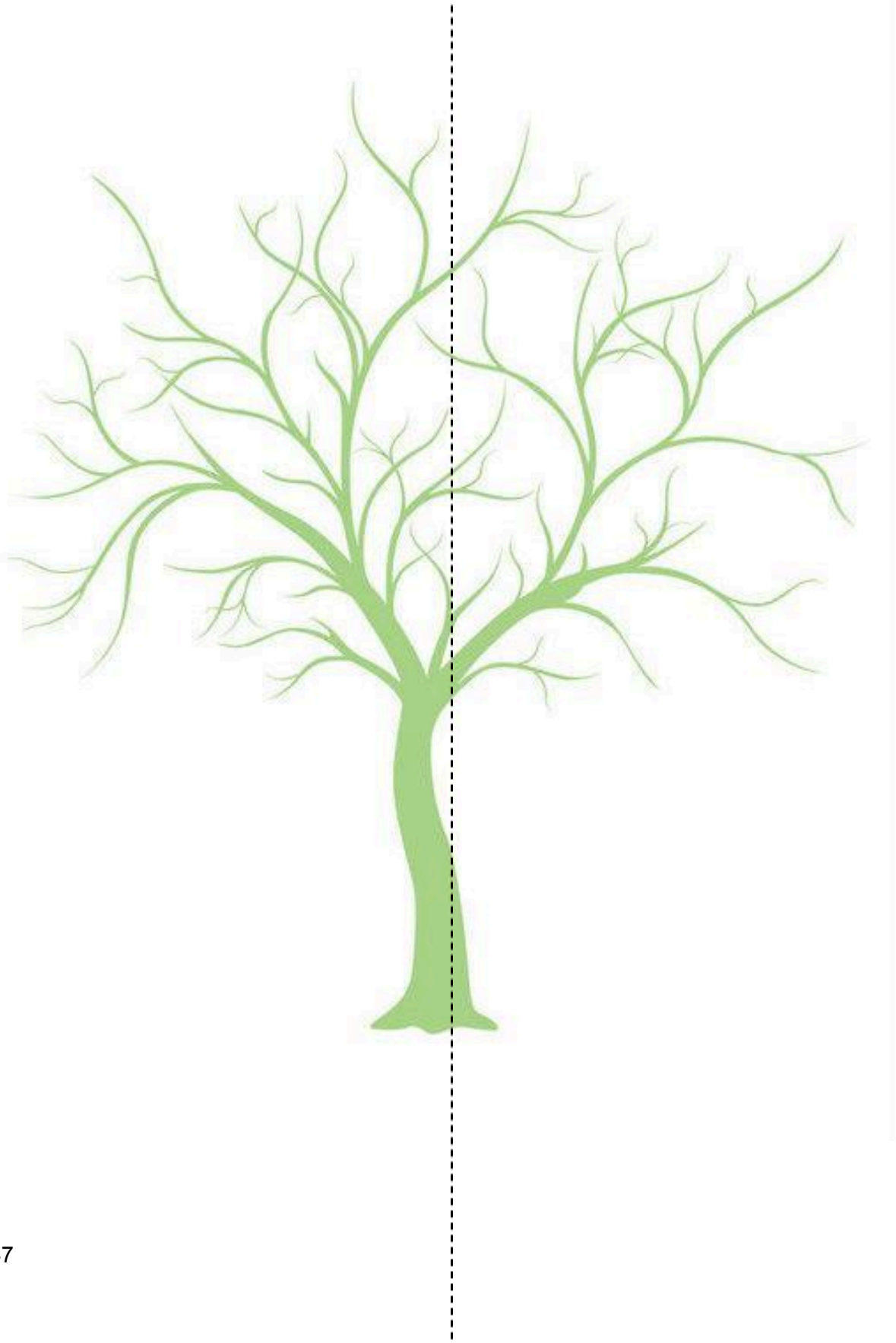
Supervisor: Zoltan.dornyei@nottingham.ac.uk

School of English Research Ethics Coordinator: dominic.thompson@nottingham.ac.uk

Appendix C

My English Language goals tree

Goals for the end of my course *Goals for later in my life*



Appendix D Ethical Approval Study 2

Faculty of Arts Ethics Approval Form

Researcher name	Saadia Hasan
School/Department	School of English
Project Title	Enhancing mental imagery through layering
Date	October 2016
Email address	Saadia.hasan@nottingham.ac.uk

(2) Research aims/questions

Provide a brief summary of the research aims/questions [max 100 words]

Research Questions

In sport, the layering method has been shown to help athletes (dancers, softball players, novice golfers) to create and develop more vivid images. Can this method be used with language students to increase the vividness of their images of their Ideal Self?

Aims:

To determine whether the layering method can improve students' imagery ability, and compare its effects with traditional visual imagery.

To gain some insights into the imagery experience of L2 students.

(3) Methods

Please give brief details of how you will be employing these methods [max 200 words]

I am looking at having 46 participants; these will be selected from the previous study on the ideal self, whereby they will be invited to take part in a further study to investigate their mental imagery. Prospective participants will be provided with information on the project, its aims and methods. They will receive an Information Sheet about the study, and have the opportunity to ask questions about the study, and will also be required to complete consent forms if they are happy to take part.

Data will be collected during 4 weekly sessions of around 30 minutes. These sessions will be as a group. In each session, the participant will use a rating scale to measure the strength of mental imagery. This is attached to the email.

Declaration

Signed __ Saadia Hasan

Date _____October 2016

Office use only:

Approved _____Dominic Thompson_____
Date_____26/10/16_____

(School Ethics Officer)

Confirmed __Neil Sinclair _ Date 27/10/16

Research Project: Information Sheet

Enhancing the vividness of the Ideal L2 Self

We all have an idea of what we want to be in the future. I am carrying out some research into what **you**, as a Language Learner, would like to be in the future! In this study, we will try to see if it is possible to make your future vision more clear and detailed. This research is important because it will tell us more about how language learners can use visualisation to increase their motivation.

If you would like to take part in this research, it will require you to take part in 2 weekly sessions with me lasting between 30-60 minutes. I will give you prior notice of where and when to meet.

The discussions may be audio recorded, for the purpose of analysis. However, after the analysis the audio recording will be deleted. Any data you provide will be confidential and anonymous, and you will not be identified. You will be asked to sign a Consent form before the research takes place, and if at any stage you wish to leave the study that is perfectly fine.

This research is part of my PhD at Nottingham University, and it would be most useful for me if you would be willing to take part!

Many thanks!

Saadia Hasan

You may contact me at Aexsh14@nottingham.ac.uk or 0771 861 0926

I would like to be involved in this research about language learners' motivation, and am happy to take part in the visualisation sessions.

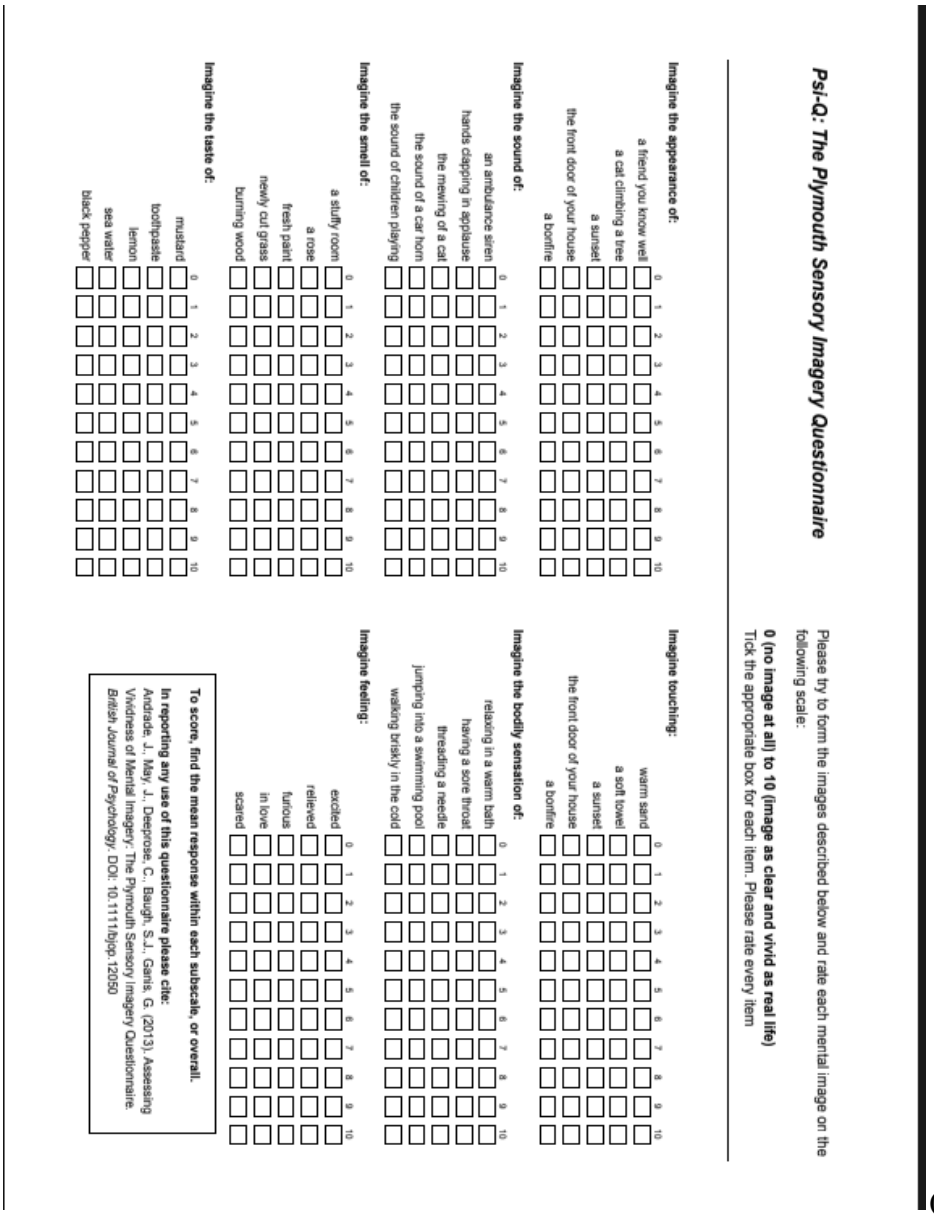
Name: …….

Age: ……

Course:……

Contact Email:……

Appendix E Psi-Q Original



Psi-Q: The Plymouth Sensory Imagery Questionnaire

Please try to form the images described below and rate each mental image on the following scale:

0 (no image at all) to 10 (image as clear and vivid as real life)

Tick the appropriate box for each item. Please rate every item

Imagine the appearance of:

	0	1	2	3	4	5	6	7	8	9	10
a friend you know well	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
a cat climbing a tree	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
a sunset	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
the front door of your house	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
a bonfire	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Imagine the sound of:

	0	1	2	3	4	5	6	7	8	9	10
an ambulance siren	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
hands clapping in applause	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
the mewing of a cat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
the sound of a car horn	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
the sound of children playing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Imagine the smell of:

	0	1	2	3	4	5	6	7	8	9	10
a stuffy room	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
a rose	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
fresh paint	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
newly cut grass	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
burning wood	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Imagine the taste of:

	0	1	2	3	4	5	6	7	8	9	10
mustard	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
toothpaste	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
lemon	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
sea water	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
black pepper	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Imagine touching:

	0	1	2	3	4	5	6	7	8	9	10
warm sand	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
a soft towel	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
a sunset	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
the front door of your house	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
a bonfire	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Imagine the bodily sensation of:

	0	1	2	3	4	5	6	7	8	9	10
relaxing in a warm bath	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
having a sore throat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
threading a needle	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
jumping into a swimming pool	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
walking briskly in the cold	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Imagine feeling:

	0	1	2	3	4	5	6	7	8	9	10
excited	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
relieved	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
furious	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
in love	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
scared	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

To score, find the mean response within each subscale, or overall.

In reporting any use of this questionnaire please cite:

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(Available at https://blogs.plymouth.ac.uk/functionalimagerytraining/wp-content/uploads/sites/66/2016/07/Plymouth-Sensory-Imagery-Scale.pdf)

Appendix F Final Evaluation Questionnaire

A Few Questions about your Experience

It would be most helpful if you could answer the following questions as fully as you can. Your time is very much appreciated!

1.Would you say that visualisation a) increased, b) decreased or c) had no effect upon your motivation to achieve your goal?

2.How has your imagery developed/changed over the week? If so, in what way?

Q3 - according to condition
3.Did you use layering in any way, i.e. adding any new details?
3.How do you feel about using a script to guide you?
3.How do you feel about listening to a recording to guide you?

4.Did the adding of more details reduce vividness or improve vividness, or have no impact? (This question only for LSRT)

5.How did you find the experience of visualising regularly?

6.Did visualising become easier over the week with practice?

7.How did you find keeping an imagery journal?

8.Did the place or time that you visualised make any difference to the experience?

9.Which senses did you use when you were visualising? (e.g. seeing, hearing, feeling etc.)

10.Which of these senses did you find most helpful in focusing on your goal?

11.How did visualising make you feel? How long did this effect last?

12.Did visualising have an effect on your motivation to achieve your goal?

13.Did visualising have any impact on your everyday behaviour?

14.Has there been any change in your goal over the week?

15.Is there anything you would like to do as a result of this exercise?

16.Would you like to continue visualising in the future?

Any other comments on your experience?

Appendix G **Other LSRT participants who incorporated distracting stimuli**

Other participants who incorporated distracting stimuli
Sophia. *L2 Goal: Improving written English* Day 1: Phones her mother after receiving a high grade in her dissertation. Day 2: Still talking to her mother. Feels very emotional and proud of her academic English ability. Day 3: **Changes setting** -goes out with her friends to celebrate. No further reference to the L2. Day 4: The focus shifts to details of the party, such as music and dancing. Day 5: The party moves to Sophia's home, where she plays music, and her friends sit and chat. Viv: 8,9,8 Ease: 8,8,8 Motivation: 8,9,9 Psi-Q: 149-160
Maria. *L2 Goal: Chat with native speakers without any obstacles* Day 1: Showing foreign friends around Beijing - talking about history, culture, food. Day 2: Travelling with a friend to a foreign country, speaking English, ordering a meal, and booking a hotel. Feels proud and focused. Day 3: Meets a popstar, interpreting for him in English as part of her job. Feels shy, but excited and happy, and that her life is perfect. Day 4: **The focus starts to shift away from the L2 goal.** Maria is on a TV show and family and friends are watching her. She feels admired. Day 5: At a party. Wearing more make-up than usual - lots of eyeliner. Her hair is in curls, and she feels beautiful. Day 6: Talking with friends about their respective lives. Friends envy Maria for her glamorous lifestyle. Viv: 8,9,8 Ease: 9,9,9 Motn: 6,7,7 Psi-Q: 152-176
Andrea. *L2 Goal: To teach English.* Day 1: Andrea is teaching in a classroom. Day 2: Students are listening to her, and she feels confident. Day 3: Some students at the front are chatting in English, and Andrea can hear them and understand them. Day 4: **A move to somewhat negative imagery:** The whole class is talking, and it becomes too noisy. Andrea tries to talk, but struggles to make herself heard. Day 5: The classroom feels too warm. Andrea feels uncomfortable speaking, and decides to remain silent. Viv: 8,9,8 Ease: 8,8,8 Motivation: 8,9,9 Psi-Q: 149-160
Jenny: *L2 goal: to communicate more confidently with classmates and lecturers.* Day 1: In a seminar room. The teacher asks a question, and Jenny is the only student to respond. She feels relaxed and confident. Day 2: Same setting, but the teacher responds positively to Jenny's comment. Jenny feels happy and satisfied for being recognised for her ideas.

Day 3: **A move to somewhat negative imagery and no more speaking from Jenny** - One of the students refutes Jenny's opinion and challenges her ideas. Jenny can see and hear the student: "her face, blonde hair, black jacket and her hands are on the desk with black nails. Her voice is quite like one of my classmates." Jenny starts to feel nervous.
Day 4: The focus moves to external details, such as the temperature, details of Jenny's outfit, and students' coats on the back of the chair. Jenny feels a little uncomfortable.
Day 5: Jenny adds the smell the of the classroom: "It's a combination of paper, plastic, printing ink and a little bit of stress." She also describes her desk as messy.
Day 6: A new setting of a group discussion. Jenny sits on a table with two other girls in a crowded place. She can see their eyes and also the cup of tea in front of her. She can smell the tea and see the water vapour. She feels sleepy. No details of any language.
Day 7: Jenny focuses on one of the girls in the discussion, who has blonde hair and blue eyes and wears a white coat and jeans. Her hands are on the table, and she does not seem friendly. There is a big and heavy book on the table. Jenny crosses her legs and leans back on her seat – possibly a sign of defensiveness?

Viv: 8,9,9 Ease: 7,9,10 Motivation: 8,8,8 Psi-Q: 151-186

Appendix H How I discovered my aphantasia

When selecting a research topic for my Master's dissertation, I was immediately drawn to the concept of vision and the ideal self. The idea of visualising your goals so clearly that they felt almost real and achievable fascinated me. I tested this theory with language learners focusing on their presentation skills, using pre- and post-visualisation measures. The results showed a significant impact not only on their self-confidence but also on the actual delivery of their presentations. This experience convinced me of the power of vision, and I began incorporating it regularly into my teaching, and found students responding enthusiastically. It was a natural progression for me to explore this further by pursuing a PhD.

It never occurred to me that I might have aphantasia. This was not because I avoided visualising my ideal self; on the contrary, I engaged in visualisation activities frequently. I even attended a three-day Creative Visualization course that involved guided imagery scripts. Although I could not see visual images, I believed I was using mental imagery. For instance, if the script placed me in a meadow, I could imagine feeling the warmth of the sun and a sense of relaxation and bliss, even though I couldn't actually see anything around me. The feeling of being there was so vivid that I never questioned my visualisation ability.

I also used visualisation to prepare for an important presentation during the second year of my PhD. In the days leading up to it, I imagined myself in the room, standing confidently in front of my audience. However, my visualisations did not involve seeing or hearing myself, the audience, or the room. Yes, I knew that I looked smart and had good body language and gestures. I knew that the audience was listening to me with interest. I knew that I was speaking at a good pace and sounded confident. Yet I did not hear or see any of these things, rather I felt these emotions intensely during and after the visualisation. When the day came, the mental practice paid off; I felt eager, and confident, and most of all, psyched up and ready to go. For me, imagery was always emotional. The heightened emotional state during visualisation was the key motivational factor.

It was only when I started participating in imagery tests that I realised I could not see or hear in my mind. During the "visualise a lemon" activity, which I often used as a warm-up for visualisation with my research participants or students, I could smell the lemon and taste it, but I definitely could not see it. When I tried to visualise the lemon, the word "yellow" would

instantly come to mind, perhaps tricking me into thinking I could see some yellow. However, I now understand that I could not see the shape of the lemon or any of its details.

Similarly, when asked to imagine my son's face, I cannot visualise his face or features. I know he has black hair and a round face, but this knowledge comes from memory, not mental imagery. I can imagine the sensation of stroking his face and the intense feeling of love when hugging him, but I cannot see him in my mind. This realisation helped me understand that mental imagery is multisensory, not just visual. Therefore, my lack of visual and auditory imagery did not equate to aphantasia in my understanding at that time.

I now appreciate that mental imagery is a skill that can improve with practice. I am determined to actively work on enhancing my visualisation ability, especially since I am curious to see if this might increase my motivation levels!.This journey has deepened my understanding of the interplay between imagery, emotion, and motivation, driving me to further investigate how enhancing visualisation skills can positively impact learning, performance, and overall well-being.