

**Title: Researching Teacher Learning:
The Contribution of Co-teaching**

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Abstract

Formal placements on initial teacher education programmes focus on the students' learning and, in some contexts, co-operating teachers are involved formally as mentors in this process. Traditionally in Ireland, the location of this research, co-operating teachers had no formal or recognized role on placement. However, recent policy changes (Teaching Council, 2011) recognize the significant contribution which co-operating teachers can make to the student on placement. In the context of this policy change, this research examines how a co-teaching model of placement promotes the learning of the student teacher and of the co-operating teacher, thereby redefining the roles assumed by both on traditional placements.

Following a case study approach in the qualitative paradigm, this research documents the experience of four co-teaching partnerships, each comprised of a final year student teacher and an experienced teacher. Data gathered included semi-structured interviews, planning templates, reflections and vignettes and these were analysed to determine how co-teaching compared with formal placements as a learning to teach experience, how each co-teacher learned from the other and how each co-teacher considered they contributed to the others' learning.

The research concluded that professional dialogue between students and co-operating teachers was enhanced when the placement model promoted and expected such dialogue, as opposed to leaving it at the participants' discretion. The students to a greater extent than the teachers, were able to articulate the professional knowledge which they developed in the course of co-teaching. In light of the policy focus on the role of the co-operating teacher, the implications of these findings, at an immediate practice level and at a national policy level are considered and areas of further research are also identified.

Student's declaration

I confirm that this thesis is the sole work of the author.

Neil Ó Conaill

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Introduction

Though it is an everyday and universally practiced undertaking, teaching is complex and demanding intellectual work requiring specialised knowledge and skills and the application of judgement (Furlong *et al.*, 2000; Darling Hammond, 2006; Sahlberg, 2007). Teacher education programmes include school-based elements in recognition of the contribution which observing, teaching and collaborating with co-operating teachers and engaging with college and school-based mentors make to student teachers' learning.

Co-operating teachers are a significant if under-utilised source of guidance and support for students on placement (Graves, 2010). They facilitate students' observation and teaching and in some cases, following their observation of the students, they provide non-evaluative feedback. While the role and contribution of the co-operating teacher is recognised internationally (Clarke *et al.*, 2014) and harnessed to the benefit student (Hudson and Hudson, 2010), in the Republic of Ireland, the location of this research, traditionally, the co-operating teacher has been excluded from any formal engagement with student teachers on placement in their classes.

In the Irish context, the marginalisation of the co-operating teacher has been well documented (e.g. Fullam, 2007; Moody, 2009, Conway *et al.*, 2009) though recent policy developments (Teaching Council, 2011; Teaching Council, 2013) have sought to address this. The Teaching Council promotes a partnership approach to the school-based elements of programmes (Teaching Council, 2011) and emphasises the roles and responsibilities of all partners in the placement process, including the co-operating teacher. While many calls have been made to recognise the valuable contribution that co-operating teachers can make to student teachers' learning (Kellaghan, 2002, Coolahan, 2001, DES, 2005), the Teaching Council's inclusion of the co-operating teacher as a partner in the placement process,

though a norm internationally, is noteworthy as the first recognition of their role in the Irish context. While not focused solely on the experience of co-operating teachers on placement, this research provides further testimony to their school placement experience, and illustrates the distance between their lived experience and policy aspiration.

Bridging the gap with third space collaborations

Integrating campus and school-based learning is 'one of the perennial dilemmas of teacher education' (Darling-Hammond, 2006, p. 9). Partnership between teacher education colleges and schools is concerned with ensuring coherence between the campus and classroom in student teachers' learning to teach experiences, thus addressing the dilemma identified by Darling-Hammond (2006). Promoting collaboration between co-operating teachers and students on placement and acknowledging its value is essential in ensuring that partnership is experienced at a classroom level.

With a generalisation that at once illustrates the dominance of the perception of placement as problematic and the inaccuracy and unfairness implicit in all generalisations, Zeichner (2010, p. 91) stated that student teachers or interns and their co-operating teachers are often left to work out the daily business of student teaching by themselves with little guidance and connection to campus courses.

He advocates the development of third space learning communities, in which school and university-based teacher educators combine practitioner and academic knowledge in a manner which enhances the learning of prospective teachers (Zeichner 2010, p. 92). These hybrid spaces are characterised by an absence of the hierarchical power relations and the privileging of certain knowledge and personnel, namely the university supervisors. Third space is egalitarian and dialogic focussed on promoting student teacher learning, and rejects the outside-

inside model where expertise is seen to lie primarily among academics and not among P-12 educators (Zeichner, 1995).

This research created partnerships following the egalitarian and dialogic emphasis of these hybrid spaces. Student teachers and co-operating teachers collaborated as co-teachers in a placement experience that occurred independent of the students' formal placements. Together, as co-teachers sharing responsibility, they collaboratively planned, taught, evaluated and reflected upon a series of science lessons. In this research the co-operating teachers were taken from the margins of the placement experience and assumed shared responsibility with the student teachers. As co-teachers who collaborated in planning, teaching and evaluating a series of lessons, the participants would articulate their pedagogical decision making, thereby making explicit and available to their co-teacher the judgements which inspired their actions. This model of co-teaching created a context for critical and reciprocal dialogue between the co-teachers, which in turn deprivatised their pedagogy and enabled the sharing of tacit knowledge (Kriewaldt and Turnidgeit, 2013). Unlike the formal college placement on which they had no formal role, the co-operating teachers were centrally involved as co-planners, co-teachers, co-reviewers on this placement. Similarly for the student teachers, being a co-teacher allowed them to learn about teaching and to contribute to their co-teacher's learning.

Focussing on teacher learning

This research investigated what professional knowledge is learned by the student teacher and by the co-operating teacher when they collaborated as co-teachers. It cast both as learners, and examined the teacher learning that occurred in co-teaching partnerships constituted by a student teacher and an experienced teacher. Unlike conventional placements which harness the co-operating teachers' expertise as mentors to the students, this research cast both as teachers and as

learners, deliberately including a reciprocal dimension. In the context of trends towards school-based initial teacher education, and the promotion of partnership as an engagement model it is timely to examine the learning opportunities which close collaboration on placement affords to both the student teacher and the co-operating teacher. The reciprocal dimension facilitated by co-teaching distinguishes it from formal placements which focus on the student teacher's learning and from formal placements which enlist the co-operating teachers as mentors.

Background to the research

This research deals with a topic of intrinsic interest to the researcher. Working in the field of school placement and at a time of renewal of teacher education in Ireland, the research interests and professional role of the researcher dove-tailed neatly. Working on three teacher education programmes which involve in excess of 2500 placements in primary schools annually, the researcher was in contact for most weeks of the academic year with students on placement and with their co-operating teachers. This involvement provided insight into the experiences of students and teachers involved and opportunities for discussions regarding alternative practices and methods of engaging student teachers in the learning to teach process. Arising from this engagement with students and co-operating teachers (as a science education lecturer and school placement tutor) and arising from the opportunity to engage in small scale alternative placements, the researcher became involved in co-teaching science initiatives. One of these initiatives gave student teachers the opportunities to teach science lessons collaboratively with peers. These occurred as part of elective modules following the completion of the formal and structured placements. As non-assessed teaching opportunities the student teachers relished the opportunity to teach without the traditional restraints of supervision or evaluation.

These small-scale initiatives continued for three years and in their evaluations and reflections, students indicated that they found them to be productive and enjoyable. The class teachers who made their classes available also enjoyed the opportunity to observe and learn from the students but their actual involvement was minimal. This effective marginalisation of the class teacher continued the traditionally structured formal placements – class teachers facilitated the students and occasionally offered advice or feedback but it was recognised that formative and critical appraisal of the students was largely the responsibility of the college supervisor.

On formal placements, engagements between the student and co-operating teacher were locally negotiated, and have been described by Moody (2009) as fragmented and lacking consistency. In the absence of guidance from colleges, co-operating teachers decided for themselves whether or not to offer feedback to the students on placement. Similarly, unsure about their entitlement to approach teachers, students were reluctant to impose on teachers and seek feedback. Where engagement occurred it was on their own initiative rather than promoted by college guidelines. In contrast to the formal placements, this co-teaching promoted discussion and engagement precisely to study the outcome from a learning perspective for both.

As a placement which took place within an elective module, this co-teaching initiative was not bound by the traditional parameters and relationships which defined formal college placements. To exploit the opportunities provided by such an informal placement, this co-teaching placement involved the class teachers not just as facilitators of the students but as co-teachers with the student. It sought to involve the teachers as contributors to the student teachers' learning and as learners themselves. This shift from facilitating a student's teaching to becoming involved as a co-teacher represented a break with traditional roles and sought to investigate the untapped resource of professional knowledge which the class teacher represented.

Chapter 1 describes the context of the study. In a broad sense, context refers to the placement element of initial teacher education programmes and more particularly how it is structured nationally and in the researcher's institution. A focus on the placement as a learning opportunity and a central site of partnership is established, leading to the statement of the research questions. The principles guiding the research are outlined in Chapter 1, as well as the central themes of situated cognition and teachers' professional knowledge.

Chapter 2 presents the literature review and the study is placed in the context of the literature on learning to teach on placement, school-based teacher learning, co-teaching and communities of practice. Teacher knowledge is key to teacher learning, teachers need knowledge in order to teach but also develop and refine this knowledge as they teach. Therefore teacher knowledge and how it is developed is also addressed in this chapter.

In Chapter 3 the methodological framework locates the study as participative action research case study within the qualitative paradigm. Not fitting neatly into definitions of action research or case study, this chapter establishes the research principles which influenced the conduct of the research and justifies its categorisation as both action research and case study.

Chapter 4, research design, describes how the research was undertaken, the participants, the methods of data collection and data analysis. Nine co-teaching partnerships were established, four of which became the subject of the research. The number was reduced as a result of the difficulty experienced by some partnerships to sustain the teaching blocks, and in one case the unavailability of a co-teacher for interview at appropriate times.

The findings are presented on a case by case basis in Chapter 5. This approach maintains the integrity of each case and by analysing them thematically in Chapter

6, the case by case similarities and differences are addressed. The thematic analysis also allows the conceptualisation of the full study as a case study in itself.

The study concludes in Chapter 7 with reference to the limitations of the study, draws conclusions and presents a number of implications for policy and practice.

Chapter 1

This chapter sets the research in the context of current teacher education policy in the Republic of Ireland, with particular reference to policy initiatives which have impacted on the school placement component of initial teacher education programmes. Reference is made to the international and national factors which have left an imprint on these policies. The immediate context of the research, the students' college, is also described. As learning through co-teaching is the focus of the research, co-teaching as it is understood in this research is introduced as well as the concept of third-space and activity theory as a conceptual framework. Collaborative and reciprocal learning and openness to learning are recurrent themes in the research and are introduced as components of the overall guiding principles.

1.1 National policy context

Teacher education in the Republic of Ireland has been the focus of significant reform in the last decade. The 'legendary autonomy' which the OECD (1991, p. 78) ascribed to teachers in Ireland was an equally apt description for the teacher education sector. As a sector, it enjoyed considerable autonomy and exercised self-regulation through the usual parameters of academic regulations – namely validation by external examiners and university-based quality reviews. There was little state intervention or regulation and the sector exercised high levels of institutional autonomy (Harford and O'Doherty, 2016).

Kellaghan (2002) undertook a significant review of initial teacher education (primary), (and Byrne, 2002, post-primary) but no policy changes ensued from these, nor did they undermine or in any manner call into question the historically positive regard in which teaching and teacher education was held in Ireland (O'Donoghue and Harford, 2010).

However, from 2010, the policy landscape changed. In documenting a change in policy climate and direction, Conway (2013) borrowing from O'Sullivan (2005) described the change in teacher education policy as a *cultural flashpoint* and highlighted how the confluence of an economic downturn, unflattering outcomes in PISA 2009 (Perkins *et al.*, 2010) and the reforming agenda of a Minister for Education and Skills, led to an unprecedented focus on Ireland's teacher education policy. The PISA-inspired policy focus on pupils' achievement ensured that teacher education was included in the suite of reform packages aimed at restoring Ireland's educational reputation, perceived to be undermined by the PISA outcomes. The renewed focus on the teaching of literacy and numeracy, at both primary and post-primary level (DES, 2011) and the introduction of standardised testing occurred simultaneously with debates about how to equip teachers with the knowledge, dispositions and skills required for 21st century learners. The publication of key documents from the Teaching Council, namely the *Policy on the Continuum of Teacher Education* (Teaching Council, 2011a) and the *Criteria and Guidelines for Programme Providers* (Teaching Council, 2011) completed the triptych of reforming agendas. Established in 2001, with a statutory role in 'establishing standards, policies and procedures for the education and training of teachers' (Government of Ireland, 2001) these policy documents represented the Teaching Council's first interventions in teacher education. It is noteworthy that the decision to extend all undergraduate initial teacher education programmes to four years, and postgraduate level programmes to two years, and the significant extension of the placement component, was announced not by the Teaching Council but by the Department of Education and Skills (DES, 2010).

Not surprisingly, the changes reflected aspects of global education reform trends (Sahlberg, 2007), notably an emphasis on testing, a focus on numeracy and literacy and consequential accountability. Teacher education became part of the reform agenda and the Higher Education Authority commissioned report on teacher education in Ireland. The subsequent report, (Sahlberg, Furlong and Munn, 2012)

mapped out a framework for amalgamations of teacher education colleges and universities and for programme reform.

In the space of two years the policy landscape of teacher education in Ireland altered very significantly (Lynch and MacNamara Mannix, 2014) and the autonomy experienced, if not enjoyed by teacher education institutes, was significantly altered. Of significance to this research is the promotion of *partnership* as a model for school placement and the related empowerment of the co-operating teacher.

1.2 Local Context

The Faculty of Education in which the researcher is based conducts three teacher education programmes:

- A four year B.Ed degree (400 students per year);
- A four year B.Ed and Psychology degree (30 students per year)
- A two year Professional Masters in Education (primary teaching) (60 students per cohort annually)

The College is located in the mid-west of the Republic of Ireland and attracts students from the north-west, west, midland and the southern counties of Ireland. To arrange placements for these students, the Faculty is hugely dependent on the goodwill and co-operation of schools and teachers throughout this extensive catchment area. Annually, in excess of one thousand three hundred teachers have student from faculty programmes in their classrooms.

At the time of the research the students on the two undergraduate programmes completed four placements in primary school classrooms over their three year course. Placement accounted for thirteen weeks of the programmes, and most of the school-based time was devoted to teaching with little emphasis on observation or teaching related activities other than conventional whole-class teaching. The placement continuum followed a college-sourced and student-

sourced model and students experienced teaching in a range of school types. The school curriculum promotes an integrated, child-centred, constructivist approach to children's learning (NCCA, 1999) and teachers teach the whole curriculum rather than become subject specialists. The series of school placements were planned to be congruent with the students' course of study, for example the placement in early years' classes occurred following the series of modules focusing on early childhood education, recognizing the importance of coherence between the college and school as sites of learning (Le Cornu, 2010; Darling-Hammond, 2006; Zeichner, 2010). While on placement, students were supervised by faculty or personnel contracted by the college as placement tutors. While communication between the tutors and co-operating teachers was encouraged, the co-operating teachers had no formal role in the placements and received no formal recognition for their role.

1.3 Co-teaching

At a time when partnership between colleges and schools is promoted as a model for placement collaboration, it is timely to research the outcome of a student – co-operating teacher partnership created to promote the development of the teaching knowledge of both the student and the co-operating teacher. Involving the co-operating teacher in teacher education, particularly in the placement, is a means of recognizing their school-based knowledge and expertise and for Zeichner *et al.*, (2015) teacher education programmes which do not recognize this knowledge and expertise are fundamentally undemocratic. For them college – school partnerships which are less hierarchical and haphazard are required to support teacher learning.

For this research, co-teaching partnerships each comprised of an experienced teacher and a final year student teacher were established. The participants were asked to reflect on their co-teaching of a series of science lessons as a learning to teach experience and how the learning experience compared to the traditional placement for both the student teacher and the class teacher. The study involved

the class teachers not in assessment of the student teachers and not as mentors but as co-teachers. This was a significant re-casting of the co-operating teachers' role and it opened up the opportunity to examine the potential contribution they can make to the students' learning and to examine how they could benefit from such involvement. The reciprocal dimension was considered significant – it held out the potential benefit to each co-teacher and implied that this was not yet another initiative drawing on teachers' and pupils' time for the benefit of students or researchers. Rather than handing over their class to the student teacher, both took joint responsibility for teaching a series of science lessons. It was a new experience for both parties – class teachers normally have no role in the placement while the student is on placement while the student has little formal engagement with the teacher while on placement. This study took its cue from this perspective – it examined the impact of a non-assessed collaborative placement on both the student teacher and the co-operating teacher. It examined the benefits which accrue to both as members of a third space dialogic engagement.

Co-teaching was chosen as the vehicle to promote professional dialogue between the student and the co-operating teacher, to tap into the school-based knowledge and expertise to which Zeichner *et al.*, (2015) refer. Though associated predominantly with inclusive practice (Friend, 2000; Friend *et al.*, 2010), co-teaching has been recognised as a model of student teacher college based learning (Kamens, 2007; Murawski, 2002; Bashan and Holsblat, 2012) and as a component of students' placements (Roth and Tobin, 2001; Murphy *et al.*, 2004; Bacharach *et al.*, 2010) and as a model of collaborative practice between teachers. All models of co-teaching involve collaboration and dialogue between participants and for that reason it was an appropriate structure for the student teacher – co-operating teacher partnership in this research.

Any form of teacher collaboration or modelling which involves the articulation of teacher thinking, Loughran's 'thinking aloud' (2006, p. 49), promotes the

deprivitisation of teacher's craft knowledge and tacit knowledge (Wideen, Mayer-Smith and Moon, 1998). Co-teaching partnerships which focused on identifying the pedagogical reasoning which motivates teacher actions provide participant co-teachers with access to and understanding of the tacit and situational knowledge they see modelled (Lunberg *et al.*, 2007). In this model of co-teaching, with its emphasis on joint planning and joint reflecting on lessons, the student co-teachers are exposed to the what Bruner (1996) describes as the narrative epistemology of their co-teacher, that is their reasoning is shaped by the teaching context in which they find themselves and discussion of the context is a sharing of the narrative with the co-teacher. On formal placements students are not provided with insight into this narrative, hence the learning opportunity is overlooked.

This research enabled the co-teachers to articulate their reasoning and focused on the learning outcomes for both participants, the learning about teaching which accrues to the student teacher as well as to the co-operating teacher. The focus was on the outcomes for the participants as much as on the actual dynamic of co-teaching – co-teaching per se is not the focus of the research, even though the dynamic within co-teaching and the pedagogical artefacts (for example, planning templates, lesson structures, reflection prompts) have a significant influence on the co-teachers' experience.

1.4 Co-teaching as a 'third space' initiative

Borrowing from Max (2010), this research focussed on the transformative potential of a learning for teaching initiative in a hybrid space constituted by the learning environment created by both participants. The dialogic space or opportunities implicit in a partnership approach to placement are referred to as hybrid spaces or as a 'third space' (Bhabha, 1994), essentially the new ground forged, in this instance, by the collaborative dialogue between the student and the co-operating teacher. Gutiérrez regards the third space as 'a transformative space where the potential for an expanded form of learning and the development of new knowledge are heightened' (2008, p. 152). Jointly created new knowledge

is also an outcome heralded by Lillejord and Børte (2016) who see the third space as a ground for deliberation shared by collaborating participants. For them it is a space for negotiation and deliberation in which:

‘tacit knowledge is made explicit, as participants have to explain activities which normally, in their own knowledge culture, they might take for granted. Through these encounters, the participants become aware of the historical and cultural context of their activities, and when norms are challenged , innovative thinking evolves’ (2016, p. 558).

They also caution that evolutionary thinking requires leadership which helps negotiate the inevitable tensions which arise in collaborations and leadership is also required to ensure that the new learning ‘may be transferred back to the participating institutions’ (2016, p. 558). The third space, including as it does a reciprocal learning dimension, challenges the conventional hierarchies which characterize placement conversations and are open to the possibility of renewal and learning for not only the student but also the co-operating teacher. In this research the third space was populated by the student – co-operating teacher dialogue and engagements, making it different in focus from research which examines the university tutor – students engagements as third space collaborations as researched by Martin *et al.*, (2011) and Cuenca (2011). This third space collaboration, though forged initially by the researcher is sustained by the co-teachers.

1.5 Co-teaching and activity theory

As each co-teaching partnership is constructed by the merging of the perspectives and experiences of all participants, activity theory (Engeström, 1999), serves as a useful construct to frame the engagements. In the context *third space* engagements, activity theory constructs such as object, subject, outcome, community, division of labour, rules and tools (Engeström, 1999) provide a framework from which to view the learning community created in each

partnership. While they act as individuals who are situated in two distinct activity systems, Bakhurst (2007, p. 74) reminds us of 'both the significance of autonomy and how we owe our status as autonomous selves to history, culture and society' , in other words, individuals though acting autonomously are shaped by the culture and history influencing their domain. In this case, the participants' actions cannot be separated from the culture and history which moulded and determine those actions.

For Max the 'space where elements from two activity systems enter into contact' (2010, p. 216) are boundary zones which can be considered analogous to the hybrid spaces as advocated by Zeichner *et al.*, (2015). Framing both co-teachers within an activity system, makes possible the potential for 'radically new insights and developments often arise at the boundaries between communities' as anticipated by Wenger *et al.*, (2002, p. 153). Though activity theory (Engeström, 1999) is not utilized as a theoretical framework in this research, it nonetheless provides an appropriate conceptual tool when considering the funds of knowledge (Moll and Greenberg, 1990), the perspectives and insights of each participant which intersect as the co-teachers collaborate. Edwards (2005) considers activity theory as a 'framework that has considerable potential for researchers who are interested in how conditions for learning are created, and in what is learned' (2005, p. 55), and as this research asks how co-teaching facilitates learning and examines this learning, it is a useful construct for oversight of community of practice, situated learning and teacher knowledge.

1.6 Guiding principles of this research

This research is premised on the belief that teacher learning is not confined to student teacher education programmes but occurs throughout teachers' careers though is most structured during the initial teacher education phase. As continuous teacher learning was a principle underpinning this research, it was careful to avoid reinforcing the hierarchy of novice and expert and to avoid what Britzman characterised as the teacher as expert myth (Britzman, 2003). The

novice/expert dualism can be prevalent in co-teaching where one teacher assumes a lead role. By emphasising the learning of both co-teachers and by recognising that each has an area of insight, if not expertise, the dichotomy of expert and novice were minimized.

A recognition that teacher learning occurs through teaching and observing teaching is a second principle guiding this research. It is concerned with what they teach each other as much as what they learn from each other, recognising that learning outcomes are not always the intended ones. Biesta (2013) was critical of the learnification of education discourse and what he identified as the prioritization of learning and the neglect of teaching. He highlighted the conscious and deliberate agency of the teacher who has a role *beyond* that of facilitation of learning (his italics, p .456). Calling someone a teacher :

is a kind of compliment we pay when we acknowledge—and when we are able to acknowledge—that someone has indeed taught us something, that someone has indeed revealed something to us and that we thus have been taught. (Biesta, 2013, p. 457)

The role of teacher is enacted only when it is reciprocated or validated by the role of a learner. Thus the tag of teacher applies only as a sporadic identity. In each case both participants are teachers and learners and both identify what they learn from the other and what they consider they taught the other. Thus teaching occurs in co-teaching when the other learns from the actions or input of the co-teacher, irrespective of the objectives of the co-teacher. As a constructivist enterprise, the learner in this research creates new learning or understanding facilitated by the teacher. They are learning from the act of teaching as enacted by the teacher and from the dialogue ensuing from the co-teaching session.

The key component of Zeichner's hybrid spaces is the attention given by the co-operating teacher to the student teacher's learning. As Hiebert *et al.*, (2007) highlight, this learning to teach from teaching has a 'long but less noticed history

in the literature' (2007: 48). Taking models from mathematics teacher education, Hiebert *et al.*, describe an approach which explicitly fosters analytical skills which enable student teachers analyse teaching sequences in a cause and effect manner. For them the value in this approach is the transfer of the analysis of teaching from:

on-the-fly performance in the classroom to preparation and reflection outside the classroom (p. 49). Teaching expertise, from our perspective, includes planning to learn from teaching (one's own teaching and the teaching of others) and revising practice based on the data collected (Hiebert et al., 2007, p.50).

A move towards partnership which does not address the hierarchical relations as highlighted by Zeichner (2010) and which does not depict teaching episodes as learning opportunities, as proposed by Hiebert *et al.*, (2007), are essentially lost opportunities. Placements, though designed by a partnership policy, too often continue the acquisition view of (student) teacher learning and a view of knowledge as something transferred from experienced teacher to novice student (Edwards, 2005; Ellis, 2007). This research was underpinned by an interpretation of the principle of partnership which recognises the role of the co-operating teacher as centrally involved in assisting the student as a learner but also recognises the reciprocal nature of teacher learning. To this end, it allies with Hiebert *et al.*, (2007), and Van Es and Sherin (2002) in advocating the use of a framework to assist both co-teachers plan, co-teach and deconstruct their teaching with a view to uncovering the learning that occurred.

This research did not mimic an apprenticeship model (as described by Furlong *et al.*, 2000) which promoted teacher learning by placing student teachers with highly effective teachers, rather it sought participants who were open to learning from another and to teaching another. Openness to learning rather than being expert as a teacher was an essential dimension.

1.7 Research Questions

Building on the above principles and theories of learning, co-teaching partnerships were created to promote teacher learning with a reciprocal learning dimension. The examination of the co-teaching partnerships was guided by the following research questions:

Does co-teaching contribute to student teacher and co-operating teacher learning?

Does co-teaching facilitate reciprocal learning ?

The following embedded questions arise from the above:

What teacher knowledge is developed in co-teaching for (a) the student teacher and (b) the co-operating teacher ?

Is co-teaching a model for student teacher learning?

1.8 Summary

This chapter established the national context relating to student placement and involving the co-operating teacher on placement, and this theme will be elaborated upon in the next chapter. Co-teaching as utilised on this research was introduced as was the interplay between community of practice, situated cognition and third space learning communities. Reference was made to activity theory as a theoretical perspective and the principles related to participants as learners, reciprocal learning and the significance of discussion and reflection in teacher learning were established. Each of these areas will be addressed in more detail in the next chapter, the Literature Review.

Chapter 2: Literature Review

Introduction

This research investigated teacher learning occurring in co-teacher partnerships created between pre-service and in-service teachers. The context in which this study occurred can be viewed at a number of levels and this review of literature links the various strands of these contexts.

Student teachers' learning on placement is at the centre of the literature review. This first section of the literature review concerns the purpose, the format and significance of the field experience within teacher education programmes with particular focus on the concept of partnership. As referred to in Chapter 1, partnership, understood as the relationship between a college and host schools, has assumed central importance in recent policy documents in the context of initial teacher education in Ireland. Partnership, and particularly the role of the co-operating teacher, is examined in the first section of the literature review.

The participants in this study created co-teaching partnerships making this intervention significantly different to the formal field experiences to which both are accustomed. Co-teaching as an alternative to the conventional model which overlooks the agency of the co-operating teacher is explored as is the opportunity for students' participation in a community of practice.

As these were science-based co-teaching sessions, the literature review also looks at issues related to teachers' confidence and primary science and specific methodologies related to primary science.

Co-teaching partnerships were established to foster teacher learning therefore teacher knowledge is addressed. The theories concerning teacher knowledge, defining it, where it is learned, where and how it is enacted are considered in the

context of the co-teaching partnerships which were established to promote reciprocal learning.

These themes, partnership and the role of the co-operating teacher, co-teaching, primary science teaching and teachers' professional knowledge, represent the conceptual foci of the study and the literature review addresses each theme. They are most appropriately considered as interwoven concepts each supporting and supported by another, with permeating influence, much like the complex nature of teacher education itself.

2.1 Partnership as a placement model

Understanding of each others' needs and priorities and identifying areas of fruitful collaboration is key to creating worthwhile partnerships between colleges and schools. Involving teachers in the work and debate of teacher education can enrich the vision created for teacher education. This emphasis on involving teachers in initial teacher education has led to renewed interest in models of collaboration which recognise teachers' contribution to preservice teacher education and in the process recognise the potential schools offer as the sites of learning in which teachers professional knowledge can be regenerated. Such an impetus is clear in the initial teacher education policy documents published by the Teaching Council (2011, 2011a).

Close partnerships and collaborative links between schools and initial teacher education providers is a key indicator of acclaimed programmes (Darling-Hammond, 2006; Maandag *et al.*, 2007). 'A profession based on partnership' is one of the four Common European Principles for Teacher Competences and Qualifications (European Union, 2008). Goodlad (1994) advanced collaboration of schools and colleges as an opportunity for the 'simultaneous renewal of teachers and the education of educators' (p. 2). He suggested that 'there must be a continuous process of educational renewal in which colleges and universities, the

traditional producers of teachers, join schools, the recipients of the products, as equal partners in the simultaneous renewal of schooling and the education of educators' (p. 2). This invitation to 'simultaneous renewal' has developed from subject specific initiatives to full programme initiatives as Shroyer *et al.*, (2007), illustrated.

Professional development schools were a particular response to Goodlad's 'simultaneous renewal' as both school practice and student teachers' practice is transformed. These coexist however with fast-track alternatives routes into teaching which 'short-circuit essential elements of teacher learning' (Darling-Hammond, 2006: 310). The significant difference is the conception of the school as an adequate site for teacher learning and the relegation of theoretical knowledge to an optional add-on. The work of situated cognition theorists (e.g. Lave and Wenger, 1991) support the importance of the learning through engaging in the social mores of the phenomena being studied, but in the case of teaching, theoretical studies of education are complementary rather than alternative or optional to this engagement. Similarly Billet's invocation of a workplace pedagogy, one which sees learning 'as an ongoing process of engagement in conscious thought, principally through engagement in goal-directed activities and as participatory practices' (Billet, 2002, p. 478) implies that reflective engagement promotes learning about the undertaking. This reflective practice is manifest in what Darling-Hammond calls powerful teacher education programmes, those which precede teaching with theory – 'they teach candidates to turn analysis into action by applying what they are learning in curriculum plans, teaching applications, and other performance assessments' (2006:308) and follow this up with systemic reflection and feedback. Learner agency and participation emerge repeatedly as characteristic of partnership models which operate from a more sophisticated theoretical framework.

Goodlad's 1994 call for 'simultaneous renewal' was echoed a decade later by Darling-Hammond's call for 'a major overhaul of the relationships between

universities and schools' (2006, p. 308). A decade later again Zeichner *et al.*, (2015) calls time on the hegemony exercised by colleges and universities and advocates 'a paradigm shift in how we think about whose expertise should contribute to and who should be responsible for the education of professional teachers for public schools' (2015, p. 132). At a time when the alternatives to college-based teacher education are developing, the partnership model enables colleges to meaningfully address their students' needs but also alert a new constituency to their relevance and value, as Furlong (2002) puts it creating space for critical engagement. In the Irish context, as primary school classrooms reflect the increasing diversity of Irish society, dialogue between teachers and teacher educators is essential in preparing student teachers for the challenges of classrooms and such dialogue is one element of partnership.

Smith *et al.*, (2006) provide a useful chronology of partnership as it occurred in the United Kingdom and Northern Ireland throughout the 1990s and contrast the different partnership models – collaborative, HEI based, complementary model and HEI led model- in the different jurisdictions. Unsurprisingly, they conclude that governments have not been prepared to resource collaborations to enable them to function effectively and conclude that given the range of approaches, a positive outcome would be:

to apply some form of HEI-led model that formalises a distinct set of roles and responsibilities for school staff, but sees the HEI ensuring overall coherence of student experience within ITE (Smith *et al.*, 2006, p. 161).

HEI-led acknowledges that there is a lead partner thus necessitating a discussion about knowledge and dominance. They conclude that to move beyond this to *fully collaborative models will require very major shifts in the attitudes of school staff, and in the level of resource commitment required from government* (Smith *et al.*, 2006, p. 161).

As partnership has been a feature of teacher education policy in England, with particular emphasis since 1992, Youens *et al.*, (2014) consider that since then

school-university partnerships have evolved considerably and there now exists 'a greater recognition and understanding of the different, yet complementary, expertise contributed by university tutors and school mentors' (p. 102). They conclude that partnership is a strength of the current ITE system in England, though acknowledge that barriers remain to achieving genuinely 'collaborative' partnerships as envisaged by Furlong *et al.*, (2000).

Ellis (2010) contends that in England teacher education courses betray 'an impoverished version of 'experience' in school (p. 106) and that teacher educators have endured 'a sense of diminishing individual, professional and academic autonomy' (p.105). Beach and Bagley (2013) argue that the convergence of education policies across Europe (Harford, 2010; Beach 2010) with centrally controlled teacher education and an emphasis on subject knowledge and competence standards at the expense of foundation disciplines as common threads, is linked with the recent precedence of an apprenticeship approach to teacher education. The perspectives of Beach and Bagley and Ellis at one side and Youens *et al.*, (2014) at the other are not incompatible – one identifies a limited space for collaboration while the other identifies how best to utilise this diminished space.

In Scotland, Donaldson (2011) promoted closer partnership and collaboration between HEIs and schools. Echoing many criticisms of teacher education policy, McNicholl and Blake (2013) consider that Donaldson's recommendations are motivated more by an ideological stance on how things could improve rather than having an empirical foundation (p. 283). The ideological stance is rooted in conceptions of how learning occurs on placement and this is criticised for an adherence to a knowledge acquisition model rather than one which sees students as active agents in creating their own learning and an acknowledgement that this learning will actually change from school to school, as cultures and practices and opportunities change. The notion of learner agency is missing in this view and Ellis (2010) highlights the inadequacy of this omission:

Although emphasis is attached to learning to teach in the school setting, there is no sense that such learning may in fact be a potential of the relationships and interactions between the individual teacher and their social situations of development. Moreover, there is no sense that the development of knowledge is therefore likely to be associated with the capacity of beginning teachers to form relationships, to engage in joint work, to participate in a system of activity that is already in motion and has the potential to evolve and be changed. Instead, the individual beginning teacher seems to pass through the school setting (being influenced by it) rather than being constituted by acting on it and, indeed, in part shaping it. This individualistic conceptualisation of the development of teacher knowledge is a significant omission in theories of an experiential form of teacher education that is mainly located in schools (Ellis, 2010, p. 108).

We will return to views of teacher knowledge, teacher agency in developing this knowledge and reciprocal learning later in this literature review.

While calls for collaboration and partnership have persisted, the context in which it can occur has changed. A significant feature on school landscape is the “performance culture” (Avis, 2005: 212) which emphasises accountability and standardised assessment. Bartholomew and Sandholtz (2009) suggest that this performance culture ‘may explain teachers predilection toward product and standards-driven learning, which in turn can work against other mechanisms for teacher development such as professional learning communities’ (p. 157). Menter *et al.*, (2012) also ascribe the curtailment of teachers’ and HEIs’ autonomy and professionalism to performativity which define partnership within a training paradigm. While collaborative links with schools do offer the university or colleges opportunities to be involved with schools, the strictures of accountability within which schools operate and the central regulation of professional development priorities has limited the freedom either party has to exploit these opportunities.

2.2 Partnership in the Irish context

The Irish experience has shown that the trend towards partnership is one present in policy literature rather enacted in practice precisely for the reasons advanced by Smith *et al.*, (2006).

2.2.1 The influence of the Teaching Council

Until the establishment of the Teaching Council, there was no professional standards body which had oversight of teacher education in Ireland. The Teaching Council has the function of accrediting all teacher education programmes in the country and while this is a norm internationally, this external accreditation was a departure for initial education in Ireland. In 2009 the Teaching Council published its commissioned report on the learning to teach continuum (Conway *et al.*, 2009). The report was commissioned to inform debate and strategic planning on the continuum of teacher education with a specific focus on initial teacher education and teacher induction. The report stressed the importance of vibrant partnerships between schools and higher education institutions and made several specific recommendations regarding partnership in initial teacher education, with specific reference to partnership in school placement.

The imprint of these recommendations can be seen in the Council's *Policy on the Continuum of Teacher Education* (2011a) and the Council's *Criteria and Guidelines for Programme Providers* (Teaching Council 2011) which details the requirements to be met for programme accreditation. The *Continuum* policy advocates a partnership approach 'whereby colleges and schools actively collaborate in the organisation of the practicum' (Teaching Council 2011a:13) and proposed 'greater levels of responsibility devolved to the profession for the provision of structured supportmentoring, supervision and critical analysis of the experience..' (p13). The *Continuum's* advocacy of a partnership echoes calls for a formal

acknowledgement and harnessing of teachers' expertise for the benefit of students on placement and is significant in that, in the Irish context, the role of the co-operating teacher is addressed in a policy document for the first time. Kellaghan (2002) advocated the inclusion of the co-operating teacher on placement and Coolahan recognised that 'there is significant scope for improving the linkages between schools and education departments in the interests of improved teacher education in Ireland' (Coolahan, 2001:354). In acknowledging the role of the co-operating teacher and in promoting co-operating teacher and student dialogue and co-operating teacher tutor dialogue, the policy indicated a readiness to promote a new approach.

The *Criteria and Guidelines for Programme Providers* (Teaching Council, 2011) echoed these calls for partnership on school placement and sought 'new and innovative school placement models' (p.13) and the involvement of teachers in mentoring, supervision and the provision constructive feedback.

In advocating a partnership approach to school placement, the Teaching Council's policy documents are reflective of the emphasis on partnership which has been much in evidence during the last twenty years and a partnership approach has become integral to many teacher education programmes internationally (Conway *et al.*, 2009; Darling-Hammond, 2012; OECD, 2014).

2.2.2 Partnership as policy rather than practice

While these Teaching Council policy documents promoted, espoused and heralded the concept of partnership with reference to school placement, the precise understanding of partnership, exactly what it entailed and how it would be enacted was left unclear. This loose articulation of what partnership represented and the lack of a proper funding structure to underpin the new approach, in particular the empowerment of co-operating teachers as mentors, represented a lost opportunity and inhibited the development of meaningful partnerships

(Harford and O'Doherty, 2016). Though recognising the valuable contribution which host teachers can make to students' on placement, a policy statement alone, irrespective of its academic merits and reflection of international norms, does not change practice on the ground. With its undefined reference to *supervision and mentoring* (2011, p. 15), Teaching Council policy documents succeeded in highlighting the contribution that co-operating teachers could make to the learning of the student on placement but as an unresourced statement of ambition they didn't change actual practice.

Though reflecting best practice internationally in terms of promoting partnership, the Teaching Council completely overlooked the challenges associated with partnership, preferring instead what Jones *et al.*, (2016) describe as a 'deceptively simple' understanding of partnership (p. 110). Though intended to bridge the theory-practice divide and to harness the hitherto excluded expertise of the co-operating teacher in particular, in declaring 'partnership' as the preferred model, the Teaching Council overlook the necessity of trust, mutuality and reciprocity, the essential characteristics of successful partnerships (Kruger *et al.*, 2009). Insisting in 2011 that the programmes commencing in 2012 would have placement elements informed by 'partnership' was as unrealistic as it was ill-informed about the complexities in worthwhile partnerships. As a policy it was as ambitious as it was under-resourced.

2.3 The co-operating teacher

2.3.1 The co-operating teacher as mentor

In their Green Paper on teacher education in Europe, Buchberger *et al.*, (2000) used the phrase 'cooperating teacher in initial teacher education' (p.37) thus signifying its currency as a concept throughout Europe. They identified this as a particular role teachers assume in a discussion of the diversification of the teachers' roles, as it expands from a narrow focus on pupils' achievement. The central role played by the co-operating teacher in the placement learning is recognised as a core feature of effective teacher education programmes

(European Commission, 2014). With an increase in placement duration, (Darling-Hammond, 2006, identifies thirty weeks of placement as an optimum, coincidentally the duration mandated by the Teaching Council in Ireland for undergraduate programmes, Teaching Council, 2011), the mentoring role of the co-operating teacher has assumed greater significance and prominence. The literature identifies the necessity for developing co-operating teachers' mentoring skills, as they are often selected for their teaching expertise rather than mentoring capability (Colvin, Rose, Pilgrim, & Berry, 2011).

Smith and Avetisian (2011) identify the lack of clarity in mentors' roles as impacting on their efficiency as well as highlighting that the 'apprenticeship' or 'coaching' orientation of the mentors has a significant impact on the student teacher's learning. They conclude that it is essential for the mentor and student teacher to engage in educative dialogues about pedagogical beliefs and practices to ensure that they are working towards a common goal. Interestingly, Rajaun *et al.*, (2010) also highlight the importance of discussions but conclude that mixed matches in terms of teaching orientations yields greater learning for student teachers and caution against student teacher conformity to a mentor's orientation. Cope and Stephen (2001) in their study of involving practising teachers as mentors on an initial teacher education programme concluded that it was beneficial for the students and for the school and faculty staff as a form of professional development. They did however signal the difficulties attached to such a scheme – namely teachers' reflection and the rooting of practice in learning theories. In particular they highlighted the reluctance of practising teachers to engage in critical reflection and to model alternative methodologies. To ensure that there is correlation between the promoted theory of teacher development, for example, critical reflection, and the observed practice, they recommended that teachers on mentoring programmes demonstrate their capacity to reflect on their teaching.

Regarding the selection of the actual co-operating teachers, student teachers should have the opportunity to observe teachers who are philosophically aligned with the programme's vision for education and teaching and demonstrate commitment to reflection and inquiry in their teaching (Darling-Hammond and Baratz Snowden, 2007). Where the structures of collaboration and partnership exist it is more likely that this will be the case. Such collaboration will also keep channels of communication between the student, co-operating teacher and university supervisor open and minimise conflicting expectations and communications.

2.3.2 The co-operating teacher as mentor and reflective practitioner

Braund (2001) considered the co-operating teacher as an essential aspect of partnerships. He saw the mentor teacher as one who 'will engage in a degree of reflection enabling the student teacher to understand the associated pedagogy at a deeper level and to integrate theoretical aspects with the practicalities of classroom action' (Braund, 2001:190). For Braund the mentor's skill lies in the ability to nurture greater reflection by the student practitioner, and to make connections between the two sites of student learning. Central to this role is understanding the perspective and experience to date of the student teacher because as Gonzalez and Carter (1996) point out 'even though student teachers and cooperating teachers often share the same experiences, they do not necessarily have a shared understanding of what that experience means' (p.39). However, mentor and mentee interaction is largely concerned with practical matters of teaching rather than educational theory (Cain, 2009). To fulfil this role clearly the mentor needs to be familiar with the criteria of competence expected by programmes as students progress through the scheduled placements, thus highlighting the necessity for clear articulation, communication and adherence to such criteria by all involved and a discernible congruence between practice in the school and the espoused principles of teaching and learning. Too often mentoring is associated with policy imperatives (such as school-based training to alleviate

teacher shortages or to address quality control) and Hobson and Malderez (2013) concluded that how mentoring is perceived, ineffective selection of mentors, coupled with limited training for them and insufficient time for them to engage in the mentoring process are significant factors contributing to the failure of school based mentoring to reach its potential. Hobson and Malderez described the prevalent approach to mentoring as judgementoring (2013) and noted how it undermines productive mentoring. Such caution and the reasons identified for the unfulfilled potential of mentoring in schools are significant in the context of Teaching Council policy (2011) which envisages a role for co-operating teachers in mentoring and supervision of students. To date there is little evidence to indicate that such research influenced the policy development or enactment.

As an indication that mentoring is not a priority of schools or teachers, at times mentors are assigned on the basis of 'convenience, volunteerism and entitlement' (Stanulis and Floden, 2009, p. 114). When training for mentors does occur, it is too often 'rushed and concentrates on procedural rather than pedagogic aspects of the role' (Braund, 2001:197). This has serious implications for programmes which devolve responsibility for enabling analysis and reflection to co-operating teachers. Subject specific mentoring poses even further challenges though mentors, either school based or university based are more frequently called upon for pedagogical rather than subject knowledge advice (Youens and McCarthy, 2007; Levinson *et al.*, 2005). If school based learning is to realise its potential, the challenge of addressing the up-skilling of mentors as pedagogic and subject knowledge experts needs to be addressed. This however will only be beneficial if the students are willing to adopt a multi-dimensional view of their mentor and university tutor, and not view them primarily as assessors.

Langdon *et al.*, (1997) report that cooperating teachers feel that universities underestimate the time commitment of acting as co-operating teacher and also felt that with better communication they could be more informed of the universities requirements and emphases. Consider, for example, the role of the

co-operating teacher on the Columbia University teacher education programme. They serve as:

'mentors, models and instructors to student teachers. By welcoming a novice into their classroom, they demonstrate their willingness to guide student teachers in planning and implementing curriculum, afford them many opportunities to develop their personal teaching style and full potential, encourage questions as well as open discussion and dialogue, monitor and assess the many aspects of each student teacher's growth, and challenge, re-direct, question and explain according to the needs of the pre-service student' (Teachers College, Programmes Student Teaching Handbook, 2008-9, p.2).

While admirable clear, this role definition of 'mentor, model and instructor' may be daunting for many class teachers as it outlines a role in the student teacher's planning and teaching, guiding their reflective practice and participating in ultimate assessment of the student. Meanwhile university supervisors, described as *'resources for the student teacher as well as the co-operating teacher'* have the much less arduous task of acting *'as critical friends by observing student teachers' work in classrooms... several times each semester, and providing feedback and suggestions to student teachers to help them improve, analyse or re-think their practice'* (Teachers College, 2008). Clearly this is an example of a programme striving to create formal involvement by the class teacher and an acknowledgement that the school and teachers constitute a formative community of learning. When programmes involves class teachers to forge links between the theories underpinning their actions and students' actions collaborative relationship are created which provide 'opportunities for reflection about practice, shared critique, and supported change' (Clark *et al.*, 1996). This collaboration is only a strength, however, if it is sustained by a coherence within the college based programme (obvious links between theory and pedagogical sessions) and coherence between the colleges' promoted philosophy and the practice of collaborating teachers.

In their review of international literature on mentoring beginning teachers, Hobson *et al* (2009) highlight the important distinction between the co-operating teacher as mentor and the university tutor as mentor in terms of preparation for the role, understanding the role and the perceived benefit to themselves. Another significant dimension to the mentor profile is the contract tutor, those mentors hired by colleges specifically to work with students on placement. In the absence of a defined role for co-operating teachers as mentors and in light of the limited participation by university personnel in school placement (primarily due to workload pressures), the majority of student teachers receive placement mentoring from tutors contracted specifically for this purpose by the universities. In their study Hobson and McIntyre (2013) concluded that when such 'external mentors' have no assessment or evaluative role, and focus primarily on subject knowledge and pedagogical subject knowledge support, mentees report an openness in their relationship with the mentors and enhanced learning and understanding by their pupils. The absence of an assessment function was a key determining factor in their research and in terms of the role of the co-operating teacher in Ireland, emphasis on the absence of an evaluative role may enhance communication between them and their student mentees.

2.3.3 Influence of the co-operating teacher

From the student teacher's perspective co-operating teachers are seen primarily as teachers of pupils and secondly as teacher educators who make their classrooms available to students and work with them in collegial and supportive ways and who leave discussion of principles of teaching and learning to university supervisors (Koerner *et al.*, 2002). Student teachers in their study suggested amongst other issues, emotional support, a collaborative relationship, a sound approach to teaching and learning and the ability to provide meaningful feedback as appropriate supports which could be provided by co-operating teachers. Feedback and the opportunity to review lesson plans with the mentor and observe the mentor teaching are highlighted by other studies (Hobson, 2002).

Acting as co-operating teachers is a source of satisfaction to teachers who towards the end of their careers see it as a valuable use of their expertise. This would appear to be the case for what could be called active co-operating teachers. Many programmes engage the facility of co-operative teachers who receive little direction or guidance in terms of enabling their students' develop their skills or analyse their practice.

2.3.4 Recognition for the co-operating teacher in Ireland

In the Irish context, fellow class teachers act as a very significant source of support for probationary teachers, often to a greater extent than mentors identified by the school (DES, 2005, p. 24) which again indicates that mentoring is a task for which teachers need to be specially prepared and also illustrates the willingness of teachers to assist beginning teachers.

To date there has been very little research in Ireland on how class teachers consider their role on placement, their relationships with students on placement and their tutors. The Teaching Council published *Guidelines on School Placement* outlining the roles and responsibilities of all stakeholders including the co-operating teacher, with the aim of ensuring 'greater consistency in the school placement experience for all student teachers' (Teaching Council, 2013, p.3). As the *Guidelines* have not been disseminated widely, most co-operating teachers are unaware of them and they have little impact on their practice with students on placement. Absence of clear guidelines or protocols leads to widespread discrepancy of experience and practice by co-operating teachers and students. Some students actively seek advice from their co-operating class teacher, others do not. Some co-operating teachers indicate a willingness to informally mentor students, others do not. Writing about this from the perspective of the class teachers Fullam (2007) highlights the sense of isolation and powerlessness teachers can feel when their advice is neither sought nor heeded:

Despite their lack of an official role and a loss of a well defined sense of self-identity, nevertheless the cooperating teachers saw themselves as team members and wanted to help their student teachers to present themselves in the most favourable light possible when the College supervisor was present in the classroom. Therefore they were willing to act as unofficial mentors. There was the added value that in helping the student teacher they were also helping their pupils who remained their number one priority. However when their help, advice, guidance was not sought or was declined there was an acute sense of how disempowered they had allowed themselves become and they felt annoyed and frustrated. The lack of any structures to assist them in this predicament added to their sense of being isolated and neglected (Fullam, 2007, p.157).

Whatever about individual students choosing to overlook the advice offered to them, teachers clearly felt disenfranchised by the lack of guidance from the college regarding their role within the placement. While the terms *partnership* and *co-operating teacher* are used to describe this process, clearly the relationships are not underpinned by strong communication and shared understandings that are evident in other collaborations which use the same language. The inconsistency of support offered to students questions at least the appropriateness of the language of 'co-operating teacher' and 'partnership' but more significantly highlights the need for sustained effort to create understanding of roles and priorities in placement partnerships.

When this research was undertaken, the *Teaching Practice* structure did not include a formal involvement by co-operating teachers. They were not involved as mentors, assistants nor as tutors. The level of support offered by classroom teachers to their student teacher varied hugely and was as a result of the personal relationship developed between the two individuals. In the Irish context, engagement is locally negotiated and occurs in the absence of clear protocols (McWilliams *et al.*, 2006; Young and Mac Phail, 2016). It is customary for the

placement tutor (College personnel or contracted former teachers) to thank the co-operating teacher for accepting the student(s) on placement and inquiry about their general performance. Students however, are assessed only on the tutor's observations and the class teachers are not involved in this process. This is the context to be transformed by the Teaching Council's espoused partnership approach. The traditional focus for student teacher learning on placement is captured in the phrase 'teaching practice' which infers learning from practicing. It excludes learning with and from a co-operating teacher and does not remotely imply reciprocal learning, ie that the co-operating teacher may learn from observing and discussion with the student.

It is clear that co-operating teachers are crucial to the effective organisation of the placement on most teacher preparation programmes. The role is evolving from one of facilitator with minimal involvement to educative mentor (Feiman Nemster, 2001) with significant responsibility and influence. The value of class teachers' expertise and its contribution to student teachers' learning is increasingly recognised and as Hodkinson and Hodkinson (2005) point out, it is often a learning experience for the teachers also:

Our data supports the view that trainees learn well when actively collaborating with more experienced teachers, both formally and informally. Experienced teachers can also learn through working with student teachers. Student teachers sometimes bring additional subject expertise to a department. Observing the different strengths and weaknesses of trainees sometimes triggered reflection and change in experienced teachers.
Hodkinson and Hodkinson (2005, p. 116).

2.3.5 Preparing co-operating teachers to work with student teachers

As programmes strive to respond the challenge of coherence and collaborative partnerships, meaningful relationships with the cooperating teachers are vital. Caution is advised however as teacher education programs conceptualise teacher

education as a career long continuum and consider the professional development of cooperating teachers as key to educational reform. Simultaneously addressing the learning needs of student teachers and classroom teachers' is not an easy task and the placing of both on the teacher learner continuum should not overlook their respective locations on that continuum.

The challenge remains for programmes to enable the co-operating teachers respond to these issues in a meaningful way. However, the feasibility or desirability of co-operating teachers being briefed for their role by various programme providers is questionable. The development of the role of the co-operating teacher in a teacher education system which is based in the principle of partnership, has implications for stakeholders beyond programme providers.

While there is merit in advocating a system-wide response to the training of co-operating teachers as mentors, as opposed to devolving this responsibility to individual programme providers, Furlong *et al.*, (2000), illustrated how central control of all aspects of teacher education limited diversity and autonomy in the sector throughout the 1990s in England and Wales. While recognising that consideration, a centrally funded or administered programme would have the benefit of being co-ordinated to operate in tandem with other demands made of schools and thereby minimise what Youens *et al.*, (2014) described as the backwash effect of a standards and accountability climate in the educational system. They concluded that policy demands made on schools impacted on teachers' readiness to work with student teachers. In the context of Ireland, Conway (2013) concluded that schools were operating within a framework of Teaching Council policies which he described as advocating trust-based professionalism, inspired by specific reference in policy documents to the Finnish model of teacher education, and on the other hand, conforming to the Department of Education and Skills high stakes low trust approach, described by Sahlberg (2007) as the globally dominant education reform model.

2.4 The curriculum context - science in the curriculum

This research involved co-teaching a series of science lessons. Though science had formed part of the primary school curriculum since 1971, and indeed was a feature of the national school curriculum in the early 1900s, it was perceived by many - teachers, parents and others in the educational community - to be 'new' in the 1999 curriculum. This misunderstanding arises partly from the relative prominence science has in the 1999 primary school curriculum in comparison to the 1971 curriculum and the increased public focus on the importance of science education at all levels. It is a relative prominence because while in Ireland 9 – 11 year olds receive more tuition time than pupils in most OECD countries, they rank 18th out of 21 on time spent on science (OECD, 2008). Science has been part of the curriculum for all primary pupils, aged 5 – 12, since 2003, with in-service training for classroom teachers having begun in 2000, initially on a pilot basis. In the school year 2002-2003 all teachers received three days professional development focussing on the science curriculum, two of which were workshops and the third a school-based planning day. Further support from the curriculum support service was available on a request basis. Up to 46% of teachers attended courses facilitated by the support service, with an additional 31% attending in-service courses offered by other providers (NCCA, 2008). Teachers attended science courses more frequently than other curriculum areas (NCCA, 2008) which indicates the level of interest in the subject but could also be interpreted as indicating the significant need for further professional development. The approach and content covered in these in-service sessions has a significant influence on teachers' subsequent teaching as evidenced by the close link between the hands-on science activities pupils' experience in school and the content areas of the science curriculum supported by in-service or special initiative science packs (Varley *et al.*, 2008). The science curriculum places emphasis on enquiry science, recognising the benefit of child centred discovery learning (NCCA, 1999a). It is largely based on the constructivist paradigm, promoting collaborative discovery learning and balancing emphasis on development of procedural skills (e.g.

questioning, observing, investigating, sorting and analyzing) and conceptual understanding.

2.4.1 Teachers' confidence and science teaching

International research indicates that teachers have concerns regarding their confidence, subject knowledge and expertise in primary science (Murphy and Beggs, 2005; Goodrum *et al.*, 2001; Kenny, 2012). Science is not compulsory at post-primary level in Ireland, though it is normally taken by pupils up to the Junior Certificate Examination (generally taken towards the end of compulsory schooling). Science is available as an academic subject in the B.Ed degree in just one of the colleges of education in Ireland and the science methods courses are largely devoted to teaching approaches rather than subject knowledge. Unlike other jurisdictions, there is discrete no examination of subject knowledge in teacher education programmes in Ireland. Research illustrates the disparity between the official and the implemented curriculum, which is often characterised by minimal hands on investigations and engagement in activities, restricted range of teaching approaches and an emphasis on the transmission of factual knowledge (Lunn and Solomon, 2000; Jones and Carter, 2007). The experience of teachers in Ireland has been similar – class size, curriculum overload and resources are key concerns that teachers have around the implementation of the science curriculum (Varley *et al.*, 2008). A co-teaching project based on primary science is one method of addressing these issues while also supporting pupils' engagement with science and continuing their recognised positive disposition to primary science. As will be indicated in Chapter 3, one of the guiding principles of this research was to involve the teachers in research which would hold out the prospect of pedagogic value to them and the science focus fulfilled that criteria.

2.4.2 The preservice primary science teacher

Science is a difficult subject for beginning teachers. Teachers' lack of self-confidence is an enduring issue in science education and Appleton and Kindt

(1999) suggested that lack of confidence not only determines whether science is taught or not, it also impinges on the topics chosen and teaching strategies employed. This relates to research which found that teachers subscribed to the value of hands-on science strategies, but seldom used them (Jeans and Farnsworth, 1996). For this reason preservice science methods courses focussing on approaches to classroom management, methodological skills and assessment approaches and teaching practice which allows students experience a range of methodologies both in practice and observation is important in the context of their development as effective teachers of science (Abell, 2006).

Initial teacher education (primary) in Ireland is generalist rather than specialist in nature. The curriculum emphasises the integrated and holistic approach to children's learning and that is the main reason against introducing a subject specific teacher education programme. Consequently science is fitted into the teacher preparation programmes along with the other eleven areas of the curriculum. Given the time constraint inevitable in such a packed programme, most curriculum areas focus on pedagogy rather than subject knowledge. Each college of education organises the scheduling and time allocation for curriculum areas independently, and though all have to abide by the Teaching Council's guidelines for programmes providers, these do not prescribe course content or contact time. This results in significant variation in compulsory science curriculum hours between the five state funded teacher education colleges (primary) (Varley *et al.*, 2008).

2.5 Co-teaching

Co-teaching has developed as one approach to ensuring that student teachers are prepared for the diversity of pupils in today's classrooms and for the necessity to develop collaborative working skills with fellow teachers, paraprofessionals, parent volunteers or other educational professionals. Working collaboratively with a diversity of peers is key to participating in learning (OECD, 2005). Though

commonly associated with special education, particularly from the 1980s (Bauwens *et al.*, 1989) and subsequently with the trend towards inclusion, the use of co-teaching in mainstream teacher education has become more widespread (Bacharach *et al.*, 2008; Ofstedal and Dahlberg, 2009). Co-teaching involving a class teacher and preservice teacher is described:

‘as making the invisible working of the classroom visible to the teacher candidate ... as the pair seamlessly alternate between assisting and /or leading the planning, teaching and evaluation. As this occurs, the classroom teacher partners with the student teacher rather than giving away the responsibility’ (Bacharach *et al.*, 2008, p.43).

In their model they see the preservice teacher gradually assuming more responsibility and ‘ultimately taking the lead in planning, teaching and assessing, including directing the contributions of the cooperating teacher’ (Bacharach *et al.*, 2008, p. 43). The teacher education programme in St. Cloud State University, Minnesota, has developed a comprehensive co-teaching programme, running since 2003, and its definition of co-teaching clearly indicates how it is designed for student teachers:

‘Co-teaching is defined as two teachers working together with groups of students and sharing the planning, organization, delivery and assessment of instruction and physical space’ (St. Cloud State University, 2007).

Every phase of the teaching and learning cycle is included in this definition though Roth and Tobin bring it further as, mindful importance of reflective practice, they include ‘regular debriefing sessions that also include students from the class’ (Roth and Tobin, 2002, p. 121) in their definition. They use the phrase ‘cogenerative dialoguing’ (p. 121) to describe the discussion involving all participants who experienced the learning process, ranging from specific lessons, teaching strategies, and subject matter pedagogy and teaching and learning in general. Involving the student voice in this dialogue, they found was ‘valuable,

valued and lead to ongoing change in teaching practices of newcomers and old-timers alike' (p. 122) and is part of a growing body of research that shows that student voice initiatives (Mitra, 2007) can improve teachers' classroom performance (Daniels *et al.*, 2001; Kincheloe, 2007). Articulation of decisions taken are key to the learning in co-teaching, such articulation ensures that an underlying rationale is exposed, as Bacharach *et al.*, (2008) put it, this helps making the invisible visible.

2.5.1 Co-teaching as mentoring

Co-teaching is similar to mentoring programmes which harness the input of co-operating teachers. Co-teaching contributes to the development of a 'culture of collegiality' hallmarked by teachers talking together about their practice, sharing their craft knowledge, observing one another's practice and supporting one another's success (Barth, 2006). They are inducted into a sharing profession and at the same time create that profession, one described by Hargreaves as 'lively learning communities in which teachers learn and improve together in cultures of collaboration, trust, and responsibility' (2008, p. 60) a description at odds with the traditional isolationist culture of teaching. Both illustrate the serious issues of power relations between the co-teachers, as in any collaborative effort where there is a hierarchical and privileged dimension to knowledge and expertise. However, while the power is clearly unevenly held in mentoring relationships, the imbalance is less overt in co-teaching as the notion of 'joint responsibility' to some extent compensates for the disparity of expertise. Equipping preservice teachers with the skills to reflect on and learn from their teaching is essential and research from Phelps and Spitzer (2012), suggests that learning from teaching may deepen teachers' content knowledge and awareness of student thinking and lead to improved teacher practices. Programmes should allow students develop their skills over time (Feiman-Nemser, 2001) and should enable them to systematically study and learn from their own teaching (Hiebert, *et al.*, 2007). Co-teaching initiatives involving preservice teachers, grounded in classroom practice and

occurring without the distraction of external supervision, is an opportunity for such learning.

2.5.2 Co-teaching science

Advocates of science teaching partnerships involving collaboration between preservice and inservice teachers, take the view that 'teachers are essential in assisting preservice teachers to become agents science education reform' (Hudson and Skamp, 2002, p. 2). A co-teaching study by Eick *et al.*, (2003), described as 'hybrid' (p. 76) their model of student teachers' initial observation of the class teacher, leading to assisting the class teacher and finally taking lead role as teacher with the class teacher as active assistant. Learning opportunities were three fold – learning from peripheral participation, from reflection on practice and learning within practice. With the current emphasis on inquiry as a key aspect of science learning, co-teaching gives student teachers an opportunity to experience inquiry based teaching without the concerns of classroom management issues and by participating in inquiry teaching with a co-teacher as an 'authentic practice' (Eick *et al.*, 2003, p.81). While the degree of peripheral participation can be negotiated, the model as described by Eick *et al.*, highlights the importance of reflecting on a teaching experience and regarding it as a learning experience.

This research created content-specific teaching experiences which provided opportunities to focus on content and instructional strategies at a deeper level while also allowing flexibility to negotiate co-teaching roles with a view to improving the science practice of both co-teachers.

It is the dialogue surrounding this shared experience that is highlighted as essential to co-teaching. Without it there is no analysis of the shared experience and no opportunity to examine its relevance and contribution to the co-teacher as learner.

2.5.3 Co-teaching as a model of learning about teaching

Using Aristotle's concepts of *episteme* and *phronesis* Korthagen and Kessels (1999) highlight how teacher education models usually provide epistemic knowledge, generally applicable educational theory, while student teachers require phronetic knowledge:

'More often, however, they need knowledge that is situation-specific and related to the context in which they meet a problem or develop a need or concern, knowledge that brings their already existing, subjective perception of personally relevant classroom situations one step further. This type of knowledge is called *phronesis*' (Korthagen and Kessels, 1999, p. 7).

Co-teaching facilitates the learning of 'contextually appropriate pedagogical moves' (Roth, 1998, p. 372), similar to *phronesis*, though Korthagen and Kessels do not exclude the student teacher learning this without the support of a co-teacher. Addressing Lieberman's (1992) call for the creation of school-based knowledge-building communities that include students, teachers, and teacher educators, Roth (1998) identifies co-teaching as an opportunity to learn about teaching in an authentic but protected learning environment. This acknowledges the:

'primacy of lived experience and the possibility of that much of practitioners' knowledge is tacit, socially and physically distributed, and irremediably situated and embodied in specific contexts' (Roth, 1998, p. 358).

Though co-teaching can be constructed as providing novices with an opportunity to 'experience the classroom at the elbow of another practitioner' (Roth, 2001, p.15) this research envisages collaborative partnerships which acknowledged that the teachers and student teachers have as much to learn from each other, similar in this regard to the study by Murphy *et al.*, (2004) where the participants are described as '*equal* partners in the process' (p. 1026).

2.5.4 Co-teaching and situated cognition

Such is the impact of teachers' socialization prior to their formal teacher preparation, the impact of this 'avalanche of experience' (Britzman, 2007, p.2) creates prior beliefs which are seen as problematic and deeply embedded by many teacher educators (Wideen *et al.*, 1998). Addressing these dispositions is a key challenge for teacher educators and has led teacher educators to look at theories of learning to meet this challenge.

Appropriate for the learning to teach process, situated cognition theories are premised on the belief that what is learned cannot be separated from how it is learned (Brown *et al.*, 1989; Bruner, 1990) and that knowledge is learned in the context in which it is to be applied. In co-teaching, social co-participation in legitimate practice (Lave and Wenger, 1991) brings about learning in teaching. In this mode, co-teaching seeks to construct theory-in-practice (Roth, 1998a) through engagement in practice and thus develop situation specific knowledge and perception, similar to Korthagen and Kessels' *phronesis* (1999). This view does not seek to privilege classroom knowledge over theoretical knowledge but recognises the interplay between them. Sharpe (2004) contends that:

'professional knowledge is no longer viewed as just consisting of a standardised, explicit and fixed knowledge base. The distinctive nature of professional knowledge lies in the interplay between its construction and its use. When teachers use their knowledge, use changes what that knowledge is' (Sharpe, 2004).

In co-teaching, both co-teachers witness and create this knowledge. When co-teaching is established with the expressed purpose of promoting teachers' learning, the articulation of the knowledge, expressed as teacher's reasoning, is as important as witnessing and creating it.

2.5.5 Co-teaching and participation in learning as a *knowing* activity

Learning in co-teaching can be seen as a movement away from ‘acquisition’ to a ‘participation’ metaphor in which knowledge is considered situated in practice (Sfard, 1998). It is aligned with cognitive theories that emphasize the social nature of cognition and meaning (Resnick, 1987) rather than emphasis on individual thinkers and learners. In applying situated cognition theory to teacher learning, the context of learning is of great importance. The central tenets of this perspective regarding knowing are:

- (a) *knowing about* refers to an activity—not a thing;
- (b) *knowing about* is always contextualized—not abstract;
- (c) *knowing about* is reciprocally constructed within the individual-environment interaction—not objectively defined or subjectively created; and
- (d) *knowing about* is a functional stance on the interaction—not a “truth” (Barab and Duffy, 2000).

With regard to teaching, *knowing about* considers participation in practice as the most appropriate forum for developing understanding and learning. In contrast to classical teacher training programmes, which are based on theory into practice and application of theory models, with clear declarative and procedural knowledge (Grimmett, 1995), in situated cognition, teacher learning occurs through ‘increasing participation in competent practice and practice-related discourse and communally shared understandings’ (Roth, 1998, p. 372). Co-teaching facilitates participation in knowing as an activity, in a specific context and for a specific purpose. Because the preservice teacher is with another teacher, they are also co-participating, learning *with* and learning *from*. This co-participation is in line with calls towards a new formulation of mentoring which moves away from ‘hierarchical dispensations of wisdom to shared inquiries into practice’ (Hargreaves and Fullan, 2000, p. 56). Co-teaching partnerships which cast both as learners, albeit at different levels, encourage this reconceptualisation

towards shared inquiry and recognises the potential contribution of each co-teacher.

2.5.6 Co-teaching and participation in a community of practice

This emphasis on participation in learning leads to the notion of a *community* in learning. The shift in the unit of analysis from the individual's context to the community context leads to a shift in focus from the learning of skills or developing understandings to one in which:

‘developing an identity as a member of a community and becoming knowledgeably skillful are part of the same process, with the former motivating, shaping, and giving meaning to the latter, which it subsumes’ (Lave, 1991, p. 65).

Co-teaching creates a culture to facilitate learning and simultaneously mould the learner as a participant in that culture. In the context of this study, culture should be interpreted as the approaches and engagements of effective teaching rather than a broader interpretation of the culture of teaching and learning in the school. The intervention was too short for a sustained integration into and exposure to the wider school culture.

However participating in a community of learning or practice does not always allow for the development of the self as an active and reciprocating agent in the community (Barab and Duffy, 2000). Edwards (2005) questioned the emphasis on community:

‘It is not clear how the community of practice metaphor deals with learning something new. It provides a compelling account of learning as socialization into existing beliefs, values and practices, but does not offer an account of how new knowledge is produced’ (2005, p. 57).

Participation does not necessarily imply meaningful contribution or that meaningful benefit accrues from this participation. This perspective, questioning the outcome of participation in a community of practice, will be addressed in the context of this study in the analysis chapter.

2.5.7 Co-teaching and an ecological theory of knowing

Barab and Roth (2006) suggest an ecological theory of knowing which places the individual learner within *affordance networks* to address the participation issue. These are described as functionally bound networks which are:

‘the collection of facts, concepts, tools, methods, practices, agendas, commitments, and even people, taken with respect to an individual, that are distributed across time and space and are viewed as necessary for the satisfaction of particular goal sets’ (Barab and Roth, 2006, p. 5).

The *goal sets* in co-teaching concern the acquisition of teachers’ tacit and craft knowledge – the learning network is created, within a frame of contextualized participation.

Co-teaching adheres to the ecological learning perspective in as much as it recognizes learning as a process of becoming prepared to effectively engage dynamic networks in the world in a goal directed manner (Hoffmann and Roth, 2005). Learning is participating within these *affordance networks* and can be equated with:

‘knowing as the process of successfully engaging an intentionally bound system such that particular goals can be accomplished’ (Barab and Roth, 2006, p. 9).

The intentionally bound system in co-teaching is comprised of the participants, their networks and their shared goals.

Learners are in authentic practice situations where, as Brown *et al.*, (1989) argued, concepts are seen as tools that can only be understood through use. The co-operating and preservice teachers, or how ever the partnerships are formed, create a community of practice in which individuals share mutually-defined practices, beliefs, and understandings over an extended time frame in the pursuit of a shared enterprise (Wenger, 1998). If successfully designed, especially in terms of developing learner ownership, the practice field not only supports the development of specific skills, but offers the individual the opportunity to assess his or her competencies and motivation for that kind of work (Barab and Duffy, 2000). Though Barab and Roth (2006) have in mind disaffected and unmotivated school pupils, their advocacy of an ecological view of learning and participation, one that allows content to *live in* its contextual richness has clear resonance with co-teaching as it creates a meaningful site for its community of learners.

2.5.8 Co-teaching as an alternative learning to teach model

A key distinction between this co-teaching experience and previous formal teaching practice experiences is the focus on learning. In the absence of the pressure of supervision and assessment, performing across the curriculum and extensive preparation, this co-teaching experience was focused on science and improving both teachers science teaching. It reframes the school as a site of learning to teach rather than a teaching performance site. The student participants in this study had completed all of their teaching practice placements and, building on their amassed competence, were now availing of an opportunity to:

‘genuinely engage in the various aspects of teaching in an environment where (engagement in experience) is the focus, rather than in an environment where successful teaching and ‘controlling’ students is the dominant concern’ (Korthagen *et al.*, 2006, p. 1029).

Not being subject to the formal organisational structures accompanying regular placements, often seen as ‘artificial and unreal’ (Kellaghan, 2002, p. 120) facilitated this unique focus and scope for each participant to benchmark and evaluate their own progress, this shift in focus from curriculum to learner (Korthagen *et al.*, 2006). Their relative experience and accomplishment also ensured that they had the capacity to work with the class teacher with an agreed programme of work and the ‘bidding down’ (Doyle, 1986) of tasks and pupil expectation to facilitate the student teachers would not occur.

For most teachers, their communities of practice are populated by their colleagues with whom they work on a daily basis. The depth of learning arising from these communities is a reflection of the school’s culture. Wenger *et al.*, (2002) wrote about discovery and imagination in communities of practice and in this case the creation of new partnerships brought a renewal for all involved. As is the case with most communities of practice, here the focus was on learning and teaching improvement – the shared goal of inquiry into teaching diminished the novice/expert relationship. Co-teaching created the learning context for these participants and shaped and guided their learning. Throughout this section on co-teaching, the importance of collaborative reflection on experiences and articulating the learning accruing from the teaching sessions has been highlighted. The next section addresses teacher knowledge, because when speaking about their learning, teachers are referring to the different types of knowledge they are developing.

2.6 Teachers’ professional knowledge

Professional knowledge is core to descriptions of a profession (Brante, 2010). He suggested:

Professionals possess knowledge of mechanisms for various phenomena but have to make delicate judgements about which ones are the optimal to use, how they should be used, and what doses are appropriate, given a certain

context, or conversely, how a context must be altered to make the right mechanisms work. Thus there exists – must exist if the activity is not to become routinized and in danger of being taken over by other occupations – a measure of uncertainty in a professional situation, entailing that professionals can refer to their tacit knowledge and demand discretion in conducting their work (Brante 2010, p. 861).

For Brante professional knowledge exists, but it's productive use is at the discretion of the professional in question. The space for teachers to exercise their professional knowledge, or to develop it in the first place, is dependent on the policy direction of teacher education. Movement along the continuum of a standardised competency-based model (Furlong, 2005; Menter *et al.*, 2012), or Sahlberg's high-stakes low trust model of global reform (2007), towards or away from a prescribed practice based model, creates or diminishes space for the exercise of this professional knowledge. One consequence of the international reviews of teachers education referred to in Chapter 1 are reforms which:

'have begun to reduce teacher education to teacher training, with an emphasis on subject knowledge and professional competency standards only' (Beach and Bagley, 2013, p. 381).

With this trend towards teacher training, the undermining of a theoretical foundation for teacher education and a focus on teachers' behaviours and quantifiable teacher knowledge, rather than tacit and practice knowledge, the importance of identifying types of teacher knowledge, including Brante's tacit knowledge, and reference to how it is learned and imparted, is underlined. Knowledge sharing is part of this knowledge acquisition, though Poulson (2001) notes:

'the dearth of opportunities for teachers to identify and communicate tacit knowledge, and make connections between formal and tacit knowledge: thus

constructing a stronger, and ultimately more effective basis for improving classroom practice' (2001, p. 52).

Teacher learning and teacher knowledge are intertwined and effective teaching is linked with this professional knowledge. Though developed in campus classrooms and in school classrooms, teachers' professional knowledge is enacted while teaching. In the context of trends towards school-based initial teacher education, it is important to identify the precise value of class-based learning for student teachers. In order to address the ideology that motivated the current seemingly unquestioning acceptance of 'partnership' as an appropriate model for student teacher learning, it is important to clearly enunciate why and how school-based learning is more complicated than the apprenticeship model suggests.

2.6.1 Categories of teachers' knowledge

2.6.1.1 Shulman and teachers' knowledge

Considerations of teachers' professional knowledge have developed from Shulman's defining work (1986) and have progressed to examining subject knowledge, pedagogical knowledge and teacher cognition, for example teachers' ability to perceive, interpret and make decisions in classroom situations (Schoenfeld, 2010). Though his classification of knowledge as content knowledge and pedagogical content knowledge and curricular knowledge are widely espoused, Shulman's classification contains seven categories of knowledge. The value of Shulman's categories and the subsequent developments (e.g. Petrou, 2007, Ball *et al.*, 2008) is the focus on knowledge which underpins teacher behaviour rather than teachers learning behaviours to become effective teachers. Research into teaching shifted from study of teachers' behaviour to teacher cognition and beliefs underpinning that behaviour (Verloop *et al.*, 2001). Shulman noted 'the consistency with which the best creations of its practitioners are lost to both contemporary and future peers' (1986, p. 68) and suggested that codifiable

knowledge can be gleamed from the wisdom of practice of experienced and inexperienced practitioners. He includes both. He regarded as crucial the:

‘capacity of a teacher to transform the content knowledge he/she possesses into forms that are pedagogically powerful and yet adaptive to the variations in ability and background presented by the students’ (Shulman, 1987, p. 15).

Shulman’s writings on teacher knowledge stem from an ‘objectivist epistemology’ and have been criticised for representing teacher’s knowledge as ‘a static body of content’ (Banks *et al.*, 2005, p.333). In a similar vein, Shulman has been criticised for assuming that content knowledge is fixed and changed only by teachers’ pedagogical knowledge or skill set, or as Ellis (2007) puts it *‘something that is merely subject to the transformative action of PCK in classrooms’* (2007, p. 453).

Tracing the influence of the subject knowledge debate on policy, Poulson (2001), recognised that Shulman and associates in the Stanford Knowledge Growth Project, did not extend their claims regarding subject knowledge to teachers at primary level and acknowledged that the interplay between subject knowledge and pedagogical knowledge is more complex when dealing with more than one subject. This clarification is important as it implies that primary teachers’ pedagogical knowledge may not be as subject-oriented as their post-primary colleagues.

2.6.1.2 Banks and teachers’ knowledge

Banks *et al.*, (2005) presented subject knowledge (a more encompassing interpretation than Shulman’s subject content knowledge); school knowledge and pedagogic knowledge and suggested that teachers’ professional knowledge emerges from the interplay of all three not only with each other but also with the teacher’s personal constructs. This they described as:

'A complex amalgam of past knowledge, experiences of learning, a personal view of what constitutes 'good' teaching and belief in the purposes of the subject' (Banks et al., 2005, p. 336).

This conceptualises teacher knowledge as evolving and responsive and they are pleased that the model has been recognised as articulating what teachers know and what teachers are able to do. Whilst recognising the value of this classification and in particular how it aligns with Lave and Wenger's communities of practice (1991), Ellis (2007) is critical of the downplaying of the collective and social construction of knowledge apparent in their representational model.

2.6.1.3 Ellis and teachers' knowledge

Ellis (2007) builds on the three-ringed model of teachers' professional knowledge (Banks et al., 2005) and presents a model of teachers' subject knowledge, again with three interplaying dimensions. He prefers to see subject knowledge as 'emergent within complex and dynamic social systems' (Ellis, 2007, p. 455), primarily the social and professional context within which the teacher works. In contrast to Shulman's context free and objectivist epistemology of subject knowledge, Ellis prefers a contextualist epistemology which considers knowledge as being neither context free nor context bound. To use Moll and Greenberg's (1990) phrase, it acknowledges that all learners are influenced by 'funds of knowledge' which influence their continued learning.

Ellis (2007) presented Culture (the setting in which knowledge is enacted and generated), Practice and Agents as his three dimensions. These three dimensions are *'mutually constitutive and interdependent and knowledge is seen as potentially emergent in the relationship between them'* (Ellis, 2007: p. 455).

While presented as a model of subject knowledge, Ellis's dimensions included all of the elements of knowledge which Banks *et al.*, (2005) identified in their triadic representation. Ellis's *Culture* included the resources for practice which range not only from the physical but also the conceptual which Banks described as pedagogic knowledge. *Practice* emphasises the communally and collaboratively agreed collectively knowledge which guides teachers' practice. It provides leeway for local negotiation of systems wide requirements and for individual differences within a coherent enterprise. Here Ellis concurs with Hodkinson and Hodkinson (2005) who regard individual learning within a participative framework as most effective:

Our empirical research findings suggest that combining the perspectives of learning as social and workplace participation, and those of learning as personal construction is intellectually possible and points towards more effective ways of understanding and improving that learning (Hodkinson and Hodkinson, 2005, p. 114).

Agents, not surprisingly, refers to the individual teachers but more particularly to their participation within the *Culture* and *Practice* realms and the values, beliefs and motivations underpinning their actions within the system. Agents contribute to the system through their '*creative displacement of usual practices and the development of new knowledge*' (Ellis, 2007, p. 458), holding open here the possible regenerative contribution of the student teachers. Underlining the agency of the participants, their simultaneous shaping and being shaped by the system, Ellis contended that:

The interactions between Agents, Practice and Culture are the core of this complex system in that the Agents (teachers of English) are not conceived of as 'passing through' school subject department contexts but are, rather, partly composed by their interactions within them and, importantly their

contributions to them. (Ellis, 2007, p. 458). (Reference to English as his study was conducted with teachers of English at post-primary level).

Edwards and D'arcy (2004) in explaining the teacher's capacity to respond to the specifics of classroom situations, illustrating *deliberative agency*, also highlight the role of school culture in facilitating responsive teaching:

Agentic teachers, the argument goes, are empowered to work responsively in classrooms and such agency is created and sustained in the social practices of the schools in which they work (Edwards and d'arcy, 2004, p. 149).

Ellis advocated the conceptualisation of teachers' subject knowledge 'as complex, systemic and emergent in practice' (p. 459) and identifies classroom research as the most appropriate focus for professional knowledge research. In agreeing with Ellis, the next step is to identify how best this in-class research can be conducted.

2.6.1.4 Leinhardt and teachers' knowledge

Leinhardt *et al.*, (1995) acknowledged the challenge of integrating theoretical and practice knowledge noting that it is not obvious how this integration may be achieved. They summarise the challenge as follows:

The task before us, then, is enable learners to make universal, formal and explicit knowledge that often remains situational, intuitive, and tacit; and to transform universal, formal, explicit knowledge for use in situ (Leinhardt *et al.*, 1995, p.403).

Here they echo the claims by Korthagen and Kessels (1999) for situation specific learning and Roth's 'contextually appropriate pedagogical moves' (Roth, 1998, p. 372), as referred to on p. 42. Having established how teacher knowledge is enacted, (Leinhardt *et al.*, 1995) call for the 'systematic analysis of the multiple,

inter-related strands of teaching' (p. 405), and this leads to a discussion of approaches to analysis of teachers' learning which is congruent with the belief that this knowledge is socially constructed and that reflection on action is integral to identifying the learning which is taking place.

2.6.2. Analysing teachers' knowledge

All of the above descriptions of teachers' knowledge indicate that it is socially negotiated and context specific (though Shulman's approach places less emphasis on these characteristics). Collaboration is central in this process of making public and sharing teacher knowledge, what Hiebert *et al.*, referred to as practitioner knowledge (2002).

Collaboration, then, becomes essential for the development of professional knowledge, not because collaborations provide teachers with social support groups but because collaborations force their participants to make their knowledge public and understood by colleagues (Hiebert et al., 2002, p. 7).

Elsewhere Hiebert *et al.*, (2003), identified the lesson as an appropriate unit of analysis. This collaborative analysis is developed further by those who advocate particular approaches to this analysis (e.g. video analysis of lessons) all of which aim to identify teachers' knowledge with a view to improving instruction:

When teachers work together to experiment with lessons, with the intent of sharing what they learn with their professional colleagues, they are engaged in something more than becoming a better teacher; they are contributing directly to the knowledge base upon which a true profession is built. They are doing what members of many other professions do, but what teachers seldom have had the chance to do (Hiebert et al., 2003, p. 212).

The classroom teaching situation is regarded as an appropriate unit of analysis, involving as it does what Laborde and Perrin-Glorian described as the 'ternary didactic relationship which binds teachers, students and mathematical knowledge' (2005, p. 1). Lesson study research (e.g. Murata and Pothen, 2011; Rock, 2003) also illustrate how the individual lesson is an appropriate unit of analysis, particularly when the lesson is collaboratively planned and enacted.

This research focussed on teacher learning, and was not confined to the success or otherwise of individual lessons, but focussed on the experience and dynamic within individual lessons to identify teacher knowledge relevant for the participants.

2.7 Summary

Unlike conventional placements, this research regarded both the co-teachers as learners and investigated teacher learning as it occurred for both. In this manner the research acknowledged that teacher knowledge evolves, is not static and that learning on placement is not solely preservice teacher learning. The examination of theories of teachers' professional knowledge, as constituted by socially constructed subject knowledge and pedagogical knowledge was a necessary basis for the analysis of the development and exercise of this knowledge by our co-teachers. Partnership on placement, with particular reference to the role of the co-operating teacher, as espoused in policy and operated in practice has been examined. Learning collaboratively, in communities of practice has also been examined.

The next chapter addresses the research design principles and the theoretical framework proposed for the analysis of the findings which were shaped by these principles.

Chapter 3: Methodological framework

This research examined teacher learning which occurred in a co-teaching model of placement which revised the roles hitherto assumed by the student teacher and class teacher.

This chapter locates the research within the qualitative research paradigm and justifies this positioning by reference to the nature of the research questions and the research methods chosen to address these questions. Described as an action research case study, the chapter begins with reference to the paradigmatic framework which guided the collection, presentation and analysis of the data.

3.1 Paradigm selection

Paradigm is described as “the basic belief system or world view that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways” (Guba and Lincoln, 1998, p.195). They indicate that choice of paradigm is laden with assumptions and these have implications for the research undertaken in terms of focus and method. Bearing this in mind it is important to determine the stance of the researcher, the operating paradigm appropriate to that stance and the implications for the conduct of the research. The appropriate paradigm for this research is the interpretive persuasion as it facilitates insight into the ‘complex world of lived experience from the point of view of those who live it’ (Schwandt, 1994, p.118). Cohen, Mannion and Morrison (2007) list a number of distinguishing features apparent in qualitative, interpretive research. Those that resonate with this research are the recognition of peoples’ agency as they construct their social world; the fact that events and meaning evolve in fluid situations; the view that context determines actions in ‘situated activities’; and finally the understanding that events and individuals are largely unique and non-generalisable. Agency and

context are significant in qualitative research (Cohen *et al.*, 2007). This research investigated the agency of teacher learners in a co-teaching context.

With the above discussion in mind, it is clear that, like all educational research, exploring the co-teaching experience and teacher learning necessitates a clear epistemological stance. Epistemology addresses 'a set of questions and issues about knowledge: what it is, how we get it, how we recognise it, how it relates to truth, how it is entangled with power' (Griffiths, 1998, p. 35). Just as assumptions and power perspectives can lead to interpreting research in a particular way, so too can they lead to a particular framework for the design and conduct of research. The ultimate implications and utility of the research depends on this framework.

Griffiths' definition of epistemology, which encompasses issues of knowledge, power and truth, when applied to this research addresses questions of teachers' professional knowledge, articulation of this knowledge, how it is established and applied, the power relations between co-teaching participants and recognising and defining participants' perspectives. For example, all participants have agency, described by Griffiths as their construction or interpretation of events in a particular way and the use of such interpretations to act in a particular way. Of interest to the epistemology of this research, the search for truth and accuracy in a situation, is how, for example the teachers' agency is altered on assuming the role of co-teacher. Of equal importance is how the student teachers' agency is affected by their role as the novice co-teacher.

3.2 Appropriateness of the qualitative paradigm

Qualitative research allows the contextual nuances of various experiences to be explored and interpreted. With its ability to take account of 'contextual information' (Guba and Lincoln, 1998, p.197) and consider the meanings and purposes individuals attach to their actions, it is seen as more sensitive to the

requirements of the educational researcher when examining the social milieu of the classroom. Heaton (2004) stresses the over-riding concern for the subjects' perceptions in qualitative research, and stresses 'fidelity to subjects' perspectives rather than correspondence with an underlying 'reality' (Heaton, 2004, p.56). A positivist approach, described by Cohen *et al.*, (2007) as regarding 'human behaviour as passive, essentially determined and controlled, thereby ignoring intention, individualism and freedom' (p. 18) undervalues human agency which is central to this research. This research, including as it did a focus on phenomena including intentions and experiences which are not feasibly quantifiable and measured as objective data as preferred by positivist researchers, is therefore most appropriately placed in the qualitative paradigm.

3.2.1 Interpretation in qualitative research

Kincheloe (1991) points out our analysis and interpretation of empirical data is conditioned by the way it is theoretically framed. More importantly in the case of interpretive action research, the analysis and interpretation is 'also dependent on the researcher's own ideological assumptions' (Kincheloe and McLaren, 1995, p. 144). In qualitative terms, the researcher is not a detached observer of this context but a contributor to it – as Guba and Lincoln (1998) assert, it is more plausible to consider findings arising from the interaction between the inquirer and the phenomena rather than being objectively 'discovered' by the researcher. Recognising their inevitable impartiality is critical for qualitative researchers, particularly when their research involves observation, interview and interpretation, such as this research.

Bassey suggests that the researcher's assumptions are guided by 'a network of coherent ideas about the nature of the world and of the functions of researchers which ... conditions the patterns of their thinking and underpins their research actions' (Bassey, 2002, p. 42). In this case the *network of ideas* centres on teacher learning in communities of practice and the researcher is instrumental in facilitating and analysing this learning. This highlights some difficulty in

interpretive research – the researcher is in the role of interpreting from the participants’ their experience of the research – what is of most interest is the extent to which the participants benefitted from the process. The research is both the process of lived experience and the interpretation of that experience, the interpretation and sense making conducted by both the researcher and the participants as social actors. Understanding the participants’ experience is a goal of the researcher and this can be realised only by interpreting their lived reality.

Particularly relevant to this research is the assertion that ‘each interpretive paradigm makes particular demands on the researcher, including the questions that are asked and the interpretations that are brought to them’ (Denzin and Lincoln, 1998, p. 26). In this research these *questions* relate to teacher learning, both student and in-service teachers’ learning and how a community of practice model created through co-teaching assists in this learning. *Interpretations* here refers to the justification of the research questions, and interpreting the participants’ responses to it. The sense making opportunities are all performed by the researcher as outsider – this complex and holistic picture is created but then needs to be interpreted. The concept and practice of reflexivity is increasingly recognised as core to the validity of qualitative research and the relationship between the research process and the findings it produces and has particular relevance to interpretations in participative action research such as this.

3.2.2 Rigour and validity in qualitative research

Silverman (2004) addressed the importance of reflexivity in refuting the argument (articulated rather than proposed by Denzin and Lincoln, 1998), that:

‘qualitative investigators think that they can get closer to the actor’s perspective through detailed interviewing and observation’ (p. 10). He states that ‘most qualitative researchers who champion the subject’s point of view or privilege experience simply do not question where the subject’s

‘viewpoint’ comes from or how ‘experience’ gets defined the way it does by those very individuals whose experience we seek to document’ (Silverman, 2004, p. 343).

Rather than see this as problematic, qualitative researchers’ work is characterised by ‘seeing through the eyes of’ the researched (Bryman, 1988, p. 279) or perceptions ‘from the inside’ (Miles and Huberman, 1994). At its core is the recognition that in qualitative interpretive research, the researcher is inextricably intertwined with the sense-making and communication that are key to the research process. In this regard the concern expressed by Anfara *et al.*, (2002) regarding the privatization of data collection and analysis in qualitative research is relevant to the *exemplifying* case studies. Echoing calls to make ‘data and explanatory schemes as public and replicable as possible’ Denzin and Lincoln (1998, p.7) are concerned with the integrity of qualitative research. Anfara *et al.*, advocate ‘the accountability of the researcher in documenting the actions associated with establishing internal validity (triangulation), theme development, and the relationship between research questions and data sources’ (Anfara *et al.*, 2002, p. 33). The range of data sources, which will be discussed in Chapter 4, underpin the claims to validity in this research.

3.3 Co-teaching research as action research

In this section several categories of action research are considered in pursuit of the most appropriate descriptor for this co-teaching research. As this research involved the investigation of change it can be aligned with the type of action research which is collaborative, systemic and transformational which Newman and Fitzgerald, (2001), see as extending the action research continuum from traditional and linear approaches. It was similar to action research which Cohen and Mannion define as ‘a small scale intervention in the functioning of the real world and a close examination of the effects of such an intervention’ (Cohen and Mannion, 1994, p.186). Both these views associate purpose and outcome with teachers’ practice – action research is focussed on defining and ultimately

improving practice. This research was collaborative not only between the researcher and the class teachers and student teachers (who should also be described as researchers) but involved collaboration between the co-teachers. It was systemic in that it was a planned and structured intervention, one which was documented as it proceeded. Action research has the possibility of bearing Newman and Fitzgerald's 'transformational' tag but in this case, Cohen and Mannion's exhortation to examine the outcome of an intervention was more appropriate. In this case teachers' and student teachers' opinions on the effectiveness of a co-teaching initiative formed a pivotal part of the research on two grounds. Firstly, the extent to which they found it a worthwhile and transformative experience and secondly how participation in a community of practice developed their professional practice.

Though Lomax (2002, p. 123) considered that the action researcher *intentionally* sets out to change the situation being studied, understanding of the processes of teaching were prioritised in this co-teaching rather than precipitating change. In co-teaching change comes about as the learner acquires a deeper understanding and accomplishment of teaching skills or a reconceptualisation of their identity as a teacher. In their definition of action research, Carr and Kemmis (1986) highlight that it encompasses self-reflective, self-critical and critical enquiry into practices with a view to improving teachers' 'understanding of these practices and the wider context of practice' (1986, p. 168). For Bradbury and Reason (2006), this understanding becomes emancipatory. Understanding again appears to be the precursor to improvement or change. A preference for educational research which is practical, authentic, rigorous and holistic (Lomax, 2002, p. 135) mirrors the design of this co-teaching research, particularly when it is undertaken within the context of cooperative inquiry (Reason, 1998).

3.3.1 Co-teaching as participative research

While this research had characteristics of action research there were aspects that distinguished it from that field, and in particular from participatory action

research. A defining characteristic of action research is the evolution of the research question – generally it evolves from the practitioners’ reflections on a particular site specific situation. As Argyris and Schon noted:

‘action research takes its cues – its questions, puzzles and problems – from the perceptions of practitioners within particular, local practice contexts’ (Argyris and Schon, 1991, p. 86).

In this instance however, the research question originated outside the site where it was investigated, though as action research, this investigation was designed to be useful, relevant and meaningful to all participants. While the participants were non-experts playing a central role, this co-teaching research did not fulfil other dimensions of Park’s (1999) participatory action research in two key respects. Firstly, it did not fulfil his insistence that ‘the people themselves own the entire process from beginning to end’ and secondly the topic did not emerge from the ‘felt needs of the community’ (Park, 1999, p. 143). This co-teaching was participative in the inclusive, experiential, knowledge understanding sense, but not in terms of the genesis of the research focus, nor was it focussed on people’s problems, one of Park’s (1999) tenets of participatory research.

Furthermore, the researcher was not integral to the dynamic being investigated, rather was an external agent canvassing for a site to implement a specific instructional change and document its effect. Thus Griffiths’ description of ‘insider but outsider’ (1998, p. 40) is apt, as the impetus for the research came from the researcher. This classification of the origins of the research focus as external to the concern but not the experience of the participants creates space for critical action research (Kemmis, 2006). This co-teaching research involved critical action research as it explored and addressed ‘*the interconnections and tensions between system and lifeworld aspects of a setting as they are lived out in practice*’ (Kemmis, 2006, p. 101, italics in original). Co-teaching was an adaption of the formal placement arrangement (*system*) in the college and the co-teachers’ experience was the *lifeworld*. It could be argued that co-teaching initiatives

emerged from the tensions and frustrations experienced by students and teachers as they operated within the constraints of '*system functioning*'.

Adopting this perspective enables the co-teaching research process and outcome to be framed by communicative action (Kemmis, 2006) comprising discussions about mutually beneficial changes to practice. These communicative actions were necessary precursors to transformative action. The researcher, while neither participant nor outsider, was instrumental in the creation of a communicative space (Kemmis, 2006) filled by the participants' conversations and reflections on their shared experience and proposals. This conversation, framed by practice and experience continued the action research cycle and held out transformative potential.

3.3.2 Co-teaching as transformative action research

Only in co-teaching projects where all teachers' learning is prioritized and documented does the transformative criteria apply. Unless they are set-up as formal and enduring partnerships between HEIs and schools, co-teaching initiatives cannot be seen as cyclical in nature, where outcomes are reflected upon and repeated until the practice/issue has improved. Essentially, this co-teaching sought to create understanding of practice and change in practice but this understanding and change would, if it transpired, be exercised beyond the site where it was developed. This separation of sites of learning and effect (in the case of student teachers) makes transformative action research an uneasy categorization for this co-teaching research.

3.3.3 Difficulties with classifying co-teaching as action research

Whether described as participatory action research, transformative action research or communicative action research, the overall focus of action research is the development of knowledge directly relevant to the actors involved and to their particular situations and creating new forms of understanding (Reason and Bradbury, 2006). Co-teaching engages the collaborative, inclusive and

participatory principles of action research. Action research emphasises researching *with* rather than on people and empowering participants through inclusivity in design and execution. Already alluded to is the issue of the researcher being conscious of planning research that had professional development potential for all participants and that was respectful of their time commitments. This is particularly true of action research which promotes participation and shared ownership in the process.

Reason and Bradbury also stress that action research is *for* and *by* people and communities and involves all stakeholders ‘both in the questioning and sense-making that informs the research, *and* in the action which is its focus’ (2006, p.2) (emphasis in original). The cyclical reflective nature of action research makes the former possible, and while this research cannot be described as cyclical, it was characterised by on-going reflection and openness to change.

With its emphasis on communicative space and participants ‘committed to local action but a wider and critical emancipatory vision for their work’ (Kemmis, 2006, p. 104) communicative action research neatly captures co-teaching’s concern with an immediate experience without compromising the invitation to stimulate long term structural change.

In summary, the classification of the research to this point has indicated that action research is an appropriate classification but the research had certain features which resonate with participatory action research and communicative action research but neither classification is fully appropriate. There is however a further classification within the qualitative research paradigm, case study, which can helpfully be developed.

3.4 Co-teaching research as case study

Just as research on co-teaching illustrates particular traits of action research, case study also offers descriptive resonance, though again not universally. Given that teacher learning was the focus of this study, case study may also be an

appropriate design consideration. Merriam (1998, p. 19) argues that case study 'is employed to gain an in-depth understanding of the situation and meaning for those involved'. Case study allows for an emphasis on process and discovery rather than confirmation (Merriam, 1998). Perhaps it is that emphasis on discovery and exploration that led Yin (2003) to caution that 'using case studies for *research* purposes remains one of the most challenging of all social science endeavours' (2003, p. 1, italics in original). Key to qualitative research is allowing the participants' voice. Case study allows that voice to be articulated and questioned but more significantly it does so in the context of illuminating a particular issue or phenomena. Freebody provides an introductory definition of the case study methodology:

Case studies focus on one particular instance of educational experience and attempt to gain theoretical and professional insights from a full documentation of that instance (Freebody, 2003, p. 81).

As Freebody suggests, the theoretical significance only comes from the examination of the particulars of the case, it begins with 'a commitment to the overwhelming significance of localized experience' (2003, p. 81). For this research the 'localized experience' is the co-teaching experience, and to ensure that this intervention adds to our understanding of co-teaching and teachers' development, the case has to be constituted in a manner that ensures that any 'professional insights' withstand scrutiny. No less than in any other methodology of research, case study needs to illustrate rigour in its analytical methods, because without transparency and theoretical adequacy the validity of the research will not move beyond its time and place of development (Freebody, 2003). Yin (2003) suggests that when 'how' and 'why' questions are posed, case study is an appropriate strategy, particularly when the researcher has little control over events or when the focus is on a contemporary issue within a real-life context.

Miles and Huberman (1994, p. 25) define a case as 'a phenomenon of some sort occurring in a bounded context'. For them, the case is, 'in effect, your unit of

analysis' (p. 25). In this research co-teaching is the case and the experience of each co-teaching partnership is the unit of analysis. Their teaching experience is the primary focus, in effect it is each lesson which becomes the unit of analysis, as was highlighted in the literature review chapter. Hiebert *et al.*, (2003) contend that focus on individual lessons is a sufficient unit of analysis:

The individual lesson is a big enough unit of teaching to contain all of the complex classroom interactions that influence the nature of learning opportunities for students. At the same time, the individual lesson is the smallest natural unit for teachers that retains such interactions. The benefit of defining small units is that they allow the detailed analyses of teaching/learning relationships that make up the core of a knowledge base for teaching (p. 217).

3.4.1 Boundedness in case study research

Baxter and Jack (2008) refer to the necessity of 'binding a case' in order to avoid the 'tendency for researchers to attempt to answer a question that is too broad or a topic that has too many objectives for one study' (2008, p. 546). Miles and Huberman (1994) present the image of the heart at the centre of the circle, the heart being the focus of the study and the circle illustrating the periphery of the case. To think in terms of concentric circles, each getting closer to the heart of the matter is also a useful analogy. In this case study each co-teaching partnership is at the centre of the case but their classroom context, their knowledge of the science curriculum, their status as teacher and student teacher are all relational variables which impact on the case. The more bounded the core of the case the clearer the research questions and the ability to determine how the processes are particular to that particular case. The scope, focus and duration of the data collection provides a good measure of the boundedness of a case and Merriam suggested that 'if there is no end, actually or theoretically, to the number of people who could be interviewed or to the observations that could be conducted,

then the phenomenon is not bounded enough to qualify as a case' (Merriam, 1998, p. 28). Occurring as it did for a specific length of time and with clearly defined participants engaging in specific teaching practices, this study has clearly established boundaries.

3.4.2 Intrinsic case study

This research had features of Stake's intrinsic case study (1995) and also of Yin's exploratory case study (2003). It was also an evaluative case study – the impact of co-teaching on teacher learning was the focus of the study. However unlike other evaluative case studies, the phenomena was set up precisely to study it – it was set up to enable the case to be explored and to be evaluated. Of the intrinsic case study, Stake says 'we are interested in it, not because by studying it we learn about other cases or about some general problem, but because we need to learn about that particular case. We have an intrinsic interest in the case' (1995, p. 3).

As an intrinsic case study, this research developed our understanding of the co-teaching phenomena, and as participative action research it afforded the participants an opportunity to examine their pedagogical practice in primary science.

3.4.3 Case study and rigour

Case study is challenged as a methodology that lacks sufficient precision, objectivity and rigour (Yin, 2003). A frequently voiced criticism of case study is its microscopic and non-generalisable nature. It is criticised as study of particularity which limits if not eliminates the generalisation of its findings. In response proponents acknowledge this point but disagree with its significance and point out that case study is more concerned with the particular instances under scrutiny, the intrinsic elements of the case, rather than making generalised theory statements. As Yin (2003) points out, once the parameters of the study are made clear and consistent with the focus of the research, and once the rigours of the

methodological approach are applied then the case can be generalisable. The difficulty is that while case study is the most appropriate method to illustrate the value of co-teaching, in comparison to the positivist criteria of validity and reliability as a methodology it is vulnerable to the accusations of being 'soft'. The priority given to examining the particulars of the case itself, as a defence against the lack of transferability of findings, although a justification for case study as a methodology, does not assist in aligning case study with either Bryman's *exemplifying* categorization (1988) or Bassey's *theory seeking/ theory testing* classification (2002).

3.5 Summary

This chapter located the research within the qualitative paradigm and established its characteristics as action research case study. It is a case study of co-teaching and each of the four sub-cases are specific bounded phenomena which can be considered as the case, the case being constituted by multiple sites. Having more than one case facilitates cross-case analysis and strengthens the external validity or generalisability of the findings (Merriam, 1998). To characterise it as an interpretive action research case study, captures its participatory nature and its concern with greater understanding of participants' lived experience. Because this research intended to document the effect of a particular intervention, it can be characterised as an action research case study. The research methods most appropriate to conducting and examining this research, the methodological rationale (Morrison, 2002, p. 11), are addressed in the next chapter.

Chapter 4: Research design

This thesis examined a model of placement, co-teaching, which revised the roles assumed by the student teacher and class teacher. It examined the impact of a placement format which is underpinned by a commitment to the principles of partnership and collaboration in teacher learning. In the context of this research, the researcher was keen to ensure that, in keeping with the principles of action research as addressed in Chapter 3, the selected approaches maximised the input of each party, recognised the context of each participant and kept the process meaningful and worthwhile for each participant. The research had to resonate with the professional development of the participants – the college researcher, the class teachers and the student teachers. This research was essentially framed by the participatory benefits of each of these three and how this benefit was ethically justifiable. These beliefs and priorities shaped the researcher's epistemology and determined the choices of research methods. This chapter introduces the participants, the criteria used for selecting them, ethical considerations in the research design and elaborates on the data collection and data analysis methods.

Working within a qualitative paradigm allowed not only for the nuances of the social situation but also made available a range of research methods that matched the criteria of involvement in research that was meaningful and worthwhile though not excessively time-consuming. Methods refer to 'specific research techniques' (Silverman, 2000, p.79) or 'the tools or instruments employed by the researchers to gather empirical evidence' (Sarantakos, 1993, p. 30). As Marshall and Rossman suggested, in the interests of transparency and accessibility:

'the best posture for the researcher is to explicate the logical and compelling connection between the research question and the choice of methods' (1989, p. 46).

4.1 Research design principles

To contextualise the study it is helpful to identify the principles which informed the study design. These principles reflect the context and purpose of the research. The researcher's epistemological stance, described as participative and empowering enquiry, also informed the design.

Principle 1: Recognising both co-teachers as learners

Traditionally, student placements are viewed as opportunities for the student teacher to observe and acquire skills from the experienced teacher. This research involved student teachers who had completed all of their programme placements and therefore while not 'equal' to the class teachers, they had a contribution to make. While the craft knowledge of experienced teachers has to be recognised, so too does the initiative and creativity and ability of student teachers. Involving both as co-planners, co-teachers and co-debriefers underlined the partnership approach and cast both as contributors, and avoided the traditional dichotomy of novice/expert.

Principle 2: Learning about teaching through science teaching

Grossman, Hammerness and McDonald (2009), highlight the contribution which clarity about teaching practices and set structures make to the creation of shared vision of teaching and learning. This shared vision or common experience then allows a dialogue emerge from a common experience and common goals. Primary science lessons were the focus of the co-teachers' efforts and a particular approach to investigative science lessons (the five part lesson) gave further focus to their collaboration. Talk strategies, approaches to encouraging elicitation and sharing of ideas, plans and outcomes of the investigations were also incorporated into the lessons. Science was chosen because the students were participating in a primary science elective, and had selected this from a range of options. The participating teachers recognised the project as an this opportunity for assisted

professional development in an area of the curriculum about which they were less than confident.

Principle 3: A commitment to helping the other learn

While each participant was a learner in the process, to emphasise the non-hierarchical foundation of the project the role of each as a contributor to the others' learning was stressed. The selection of science as the teaching focus was useful in this regard as the perception was that the students were coming to the classes with a keener insight than the class teachers. On the other hand, craft knowledge was the teachers' asset. The process of co-planning, co-teaching and joint reflection gave a structure to the whole process - one which allowed the particular insight either participant had in each part of the process be articulated and discussed.

4.2 The participants

The boundedness of this case, as referenced in Chapter 3, necessitated the use of purposive sampling for this case study – the participants couldn't be randomly selected – they had to meet criteria which were established to ensure that the participants were able to focus on the research questions. Greater depth and lesser breadth is the consequence of purposive sampling where the identification of 'knowledgeable people' ie those who have in-depth knowledge about particular issues are prioritised (Cohen, Mannion and Morrison, 2007). As a result the sample may not be representative of a larger population or that the resulting comments may not be generalisable but 'the concern is to acquire in-depth information from those who are in a position to give it' (Cohen *et al.*, p. 157).

Two cohorts of teachers, student and in-service teachers participated in this research. In the context of the espousal of teacher focussed research, the ethics of their involvement must also be addressed. Ethics here is a reference to the balance between the demands of involvement and the benefits of involvement. Issues for partnership researchers include attending to how participating in

research fits in with the everyday experience and obligations of teachers and addressing issues of deriving mutual benefit from the research and representation and voice.

In addition to class teachers, this research involves final year students already burdened with juggling a heavy timetable and assessment schedule, and needed to consider their flexibility regarding participation in such research. This issue of time, impacting on accessibility, participation and commitment to the process needed to be considered when designing the research. As voluntary participants in research, the commitment demanded from the teachers and students needed to be commensurate with the benefits which they may have reasonably expected from their participation. The student participants were in their final semester of their B.Ed programme and needed to consider timetabling and assessment constraints. This issue of teachers' time and students' time, impacting on accessibility, participation and commitment to the process needed to be considered when designing the research.

The research focus – an examination of the benefits accruing to teachers engaged in co-teaching science – framed the paradigm, participation levels, the sites and research methods to be used, and most importantly legitimately offered professional benefits to the participants.

The research design imposed a number of specific selection criteria. Having such criteria assisted in ensuring that each participant could be classed as a 'good informant' (Morse, 1998, p. 73). For Morse, a good informant has the knowledge and experience to answer questions and as importantly they should not only have the capacity to reflect and articulate but they should have the time and willingness to participate. As each student participant was to be interviewed on three occasions and each teacher participant twice, the issue of time-management had to be considered.

4.2.1 Student participants

Students had to meet two criteria to participate in the research:

1. Be final year B.Ed students who had completed all of their teaching placements
2. Choose to undertake the *Co-teaching Science* elective module in their final semester as the research workshops and school visits would occur as part of this module.

Nine students opted to participate in the research. As the research focused on teacher learning, it was considered that a cohort of students who had completed all of their school placement modules was an appropriate target group. This cohort would by virtue of having completed all their placements be proficient classroom performers and would be in a position to 'contribute' to the class teacher's learning. While unequal power relations exist between teachers and students on placement, this hierarchy could be minimised by having student participants who were opting into a research project which involved working closely with a teacher. Furthermore, as alluded to already, because they were studying a science education elective, they were bringing that expertise to their co-teacher's classroom. Similarly, the teacher participants were opting into a project which stressed the importance of collaborative working.

The co-teaching focused on the teaching of primary science. This also helped students' decide on whether or not to participate. Some came to the project with an enthusiasm borne out of confidence in teaching science lessons while others opted in precisely to learn more about teaching science and to become more proficient at it. All eligible students were invited to a briefing regarding the research to help them consider their participation. As the study occurred as part of an elective module, permission was granted by the Faculty of Education to limit the numbers undertaking the module. Normally up to thirty students would enrol in the module.

4.2.2 Teacher participants

Each co-teaching partnership was comprised of a student teacher and class teacher. One criteria for teacher participation was participation to date in formal school placements as co-operating teachers. As outlined in Chapter 1, teachers have minimal input with students on placement. This study sought to involve them as co-learners with students, a significant break from the role to which they are accustomed. For this reason, teachers who had in the previous semester hosted a student's five weeks placement were sought as participants so that comparisons could be made between the relationships which developed when facilitating a student on a regular placement and those which developed during co-teaching, as well as addressing the perceived learning outcomes for the teacher on both placements. Therefore the first teacher participant criteria was:

- Teachers who hosted a student on a recent five week placement

This target group was further refined by reference to the distance between the school and college. As the students would be making a weekly journey to the school, distance and convenience were important practical details. The researcher identified schools within a convenient distance from the college and in which students had undertaken the recent five week placement. This yielded a list of seventeen schools. Thus the second teacher participant criteria was:

- Teachers, meeting criteria one, based in schools conveniently located near to the college

The researcher met the principal of each school by appointment and discussed the research and made appointments to meet with the teachers. (See Appendix 2, excerpt from Research Journal for log of meetings). In the course of meeting with the teachers, the research was explained and the commitments were outlined. This process yielded a list of nine participant teachers who were willing to become involved as co-teachers. Their experiences to date as co-operating teachers, most recently in the previous semester, were addressed in the first teacher interview.

Those who declined to participate cited reasons such as significant other extra-curricular activities planned for the second term (e.g. preparing the class for the sacrament of Confirmation or First Holy Communion), teachers who considered that their professional obligation was fulfilled by hosting a student already or reluctance to get involved due to other personal commitments, or a consideration by the teacher that their class would be unsuitable for such a weekly intervention.

In summary the teacher participants were those who hosted a student on placement in the previous term and were in schools located conveniently to the college. These criteria refined the list of eligible participants to seventeen, of whom nine consented to participate.

The *immediate participants* were the nine class teachers and the nine student teachers who formed the co-teaching partnerships. The nine student teacher participants volunteered for the research, while the nine class teachers were chosen as a reputational sample from a group that meet two criteria – namely they teach in schools within reasonable proximity to the College and have taken student teachers in the semester prior to the research.

Peripheral participants were the nine student teachers who undertook their five week placement in the classes of the nine class teachers classed as immediate participants.

The second set of *peripheral participants* are the nine class teachers in whose classes the nine student teachers (immediate participants) were based for their five weeks placement. The eighteen *peripheral participants* were not actively involved in the research and did not directly contribute any data for the research.

4.3 Conducting the co-teaching

The partnerships were in place at the beginning of the Spring semester and the co-teaching sessions were planned to run for eight weeks throughout the semester. A

one-day seminar was held for all participants which assisted in reinforcing the understanding of the research aims and stressed the importance of each participant as a teacher and learner. Models of co-teaching, the five part lesson, and the skills of working scientifically were discussed as was all the documentation – the planning and review templates. This was the first opportunity for the co-teachers to meet and the opportunity to spend a day together helped to create professional relationships. The teachers were released from school with research funded substitute cover. Time was devoted to allow each partnership review the documentation together and identify a number of lesson themes which they would address.

On the planning day, the co-teachers agreed a schedule for the co-teaching sessions which suited the student's college timetable and the teacher's school timetable. As a result the sessions occurred on different days of the week but at times which didn't interfere with the student's attendance at lectures.

4.4 Data collection

Gillham (2000) considers the use of multiple sources of data to be a key characteristic of case study research because 'all evidence is of some use to the case study researcher: nothing is turned away' (p. 20). In this study the following forms of data were collected:

- Semi structured interviews
- Lesson plan and evaluation templates
- Reflective vignettes completed by students
- Students' evaluation essays

4.4.1 Semi structured interviews

Holliday (2007) talks about the 'messy' reality of the social setting and how a full depiction of this social life is beyond the researcher. He suggests that:

‘the devices used to capture the data can only therefore address aspects of this reality... thus, the carving out of data already takes the researcher at least one step from social reality, and is the first act of interpretation’ (p. 91).

Clearly using multiple sources of data contributes to creating a comprehensive interpretation of the context. Data was collected primarily by conducting semi-structured interviews with the participants. Merriam (1998) points out that interviewing is necessary when we cannot observe behaviour, feelings or how people interpret the world around them. Each student participant completed three interviews, one at the outset of the research, one halfway through and one at the conclusion of the research. Teachers completed two interviews, one at the beginning and one at the conclusion of the research. This yielded twenty seven student interviews and eighteen teacher interviews.

4.4.2 Student Interviews

Interview 1

The interview format allows teachers articulate their approaches and rationales which inform their work as teachers. The purpose of the interviews was to allow the participants describe the process for the researcher and by using a semi-structured approach to questioning it was sufficiently flexible to follow the experiences of the participant rather than apriori issues set by the researcher. The research questions and embedded questions gave sufficient direction to the line of questioning without being either prescriptive or narrowing for the participants nor being too open and yielding little useful responses. The student interviews took place in the researcher’s office at a time convenient to the participant. Typically the interviews lasted one hour. The interviews were immediately transcribed.

Once the participants were identified, the first interview took place. As students considered their participation, the researcher met them individually and as a group to describe the research process and focus. This allowed the researcher

develop a personal rapport with each student. This research sought to compare students' engagements with class teachers on the formal structured placements with their engagements with their co-teacher. Therefore interview 1 allowed students elaborate on the type of assistance, relationship and feedback they received during their placements. In addition, students' motivation, expectation and apprehensions about co-teaching were also addressed. These served as Robson's (2011) checklist of topics to be covered but the adoption of a semi-structured approach allowed for the modification of questions and the pursuit of relevant issues brought up by individual participants. This approach fits Rubin and Rubin's description of responsive interviewing, cases where:

'the pattern of questioning is flexible; questions evolve in response to what the interviewees have just said, and new questions are designed to tap the experience and knowledge of each interviewee' (2012, p. 37).

All nine students experienced the same placement structure but in different schools and with different teachers. This difference, and their personal motivations and expectations, ensured that all the interviews were similar, though responsive to the individual's experience.

Interview 2:

The second interview took place halfway through the co-teaching sequence. At this point, students had taught four lessons. This interview allowed students elaborate on their experience, asked them to revisit their expectations in light of this experience and also focussed on what they perceived to be their contribution to their co-teachers' learning and what they felt they were learning from their co-teacher. Maintaining continuity in the themes highlighted by the individual students from Interview 1 was important as was maintaining consistency of focus across all interviews.

Interview 3:

On completion of the set of co-teaching lessons the final evaluative interview took place. This was a 'look back' at the co-teaching experience and allowed students highlight the benefits as they perceived them.

4.4.3 Teacher Interviews

Interview 1:

Recognising the teachers' commitment to the project, these face-to-face interviews took place in the teacher's school at an after-school time which suited them. The teachers gave a brief teaching biography to begin. Similar to the focus of the students' first interview, teachers recounted their experiences on placements to date, with specific reference to their experience in the recently completed long placement. Teachers spoke about their apprehension regarding hosting a student for a placement of this duration, their relationship with the student and the supervisor. The second focus was looking ahead to the co-teaching model – their motivation for participating, their understanding of co-teaching and their expectations. The researcher had met each of the teacher participants as part of the recruitment process but not as often as he had met with the student participants.

Interview 2:

The teachers' final interview occurred at the end of the process and enabled the teachers review the co-teaching sessions. The teachers had attended a one-day briefing on the research and the researcher had visited all of the classrooms to observe a co-teaching session. This helped create a good personal relationship between the researcher and participants which encouraged the open and forthright expression of ideas by the participants.

4.4.4 Narrative data

The lesson reflections, vignettes and final evaluations formed the narrative data created by the participants. While shaped by the researcher the use of this strand contributed to the triangulation of data and also empowered the participants to address their issues without prompting from the researcher. Flick (2014) characterises these as solicited documents – the researcher asks participants to complete them with a view to making them available for analysis. Robson (2011) describes vignettes as ‘text, images or other material to which research participants are asked to respond’ (2011, p. 367) but essentially the vignette constituted responses to a series of questions or prompts. The semi structured interviews followed a similar set of questions with deviation according to the respondents, while vignettes set the same questions for all respondents to which they respond giving insight into their experience of the topics. Appendix 7 gives an example of the notes provided to students to assist their vignette writing. The students wrote vignettes in the format of a descriptive passage which described a teaching episode and this was followed by analysis guided by reference to the process skills (*learning scientifically*) or curricular principles of learning , as chosen by the student.

The lesson reflections and vignettes were useful in documenting and making participants’ experiences available to the researcher but for the participants they were useful in terms of reflecting on their own learning about teaching through co-teaching. Students were clear that while the researcher required these documents, they were completing them for a more intrinsic purpose also – to enable them chart their own learning. This exemplifies commitment to the participant benefit principle guiding the research. Appendix 4 provides an example of a student’s vignette completed after a Week 2 lesson and Appendix 5 lists the prompts which guided students’ reflections on the lessons.

On completion of the project all participants completed an essay style evaluation. In an effort to ensure that the essays included data which related to the research

key questions, prompt questions were provided to scaffold the essays, though the essay – style of data collection provided scope for participants to address issues of concern to them.

Collaborative planning for investigative science lessons with appropriate focus on the development of scientific process skills and the incorporation of talk strategies describes what the participants undertook. To facilitate the planning of lessons which incorporated these aspects of science teaching, the participants were asked to use specifically devised planning templates (see Appendix 6). These templates fore-grounded the scientific knowledge and skills to be developed and included a section on *teacher learning*. Since this project is about teacher learning and to keep a focus on that at all times, each planning template listed a series of possible foci for co-teachers to focus on. The inclusion of '*elicitation strategies*', '*talk strategies*' and '*assessment*' for example ensured that new practice was promoted and that the class teachers were learning some new approaches through the project. Students had the advantage of discussing these strategies in the weekly seminar running in parallel with the co-teaching sessions and therefore were able to contribute relative expertise in these areas to the partnerships.

To facilitate the sharing of teaching roles during each lesson, the Planning Template allowed co-teachers to identify roles to be taken by each co-teacher for each part of the Five Part Lesson. The Lesson Review template followed a similar format.

Session: **Planning Template** **Lesson Planner: The Five Part Lesson**
Date: **Date:** **Topic:**

Roles		
Lesson Part	Teacher A	Teacher B
1. Engage		
2. Demonstration/Discussion/ Exploration		
3. Planning Investigation		
4. Investigating		
5. Plenary & review		

Coteaching Planner 2008 2

Figure 1: Planning Template

These templates provide a structure for the co-planning and co-teaching and co-evaluation of the lessons thereby scaffolding the participants' interactions. They were a valuable tool as they focussed the co-teachers' collaboration on planning, learning and evaluation, and ensured that a common structure was available to all co-teaching partnerships.

4.5 Ethical considerations

Consideration of ethics in research requires us to consider the purpose, conduct and benefits of the research from the perspective of the participants and the researcher. Due reference to ethical guidelines and standards ensures that harm, risk and misunderstandings by the participants can be minimised. Ethical considerations in this research centred on consent, participant benefit and the researcher as insider participant.

4.5.1 Informed consent

As part of the thesis proposal schedule, a research ethics statement (see Appendix 3) was submitted to the School of Education for consideration. The classification of participants as immediate participants and peripheral participants, the level of commitment required of them, the data collection, analysis and security matters were addressed in the ethics application. All the relevant ethical issues were addressed satisfactorily.

The nature and purpose of the research was described to all participants and consent was sought, and obtained, from both cohorts of participants (see Appendix 1). In this research, even though the *peripheral participants* do not contribute data, because they were be subject to the *immediate participants'* observation and were the focus of the student participants comments regarding the placement, their consent was sought. Cohen et al., (2011) caution against researchers expecting access to a site of research 'as a matter of right' (2011, p. 81) and suggest that developing relationships and having the appropriate documentation available to the participants is important. Commitment to safeguarding participants' confidentiality and anonymity are crucial in qualitative research, and in this research, as co-teachers wrote and spoke in interviews about their teaching experiences, assurances regarding confidentiality were particularly important to ensure authenticity and accuracy in their written and spoken accounts.

As Bryman (2004) points out, informed consent implies that participants 'should be fully informed about the research process' (2004, p. 511) and in the case of the immediate participants, the co-teachers, this was achieved through direct face-to-face meetings. All co-teachers were involved in interviews, planning and reflective sessions, writing reflective evaluations and facilitating researcher in-class observation. While not intrusive, it was important that all co-teachers understood the extent of commitment and openness required.

4.5.2 Benefits of participation

This research was designed in a manner in which participation would be beneficial from a professional development perspective for the participants. Though not an ethical consideration in terms of confidentiality, harm to participants or an invasion of privacy, ensuring that their commitment to the research process was commensurate with the possible positive learning outcomes for themselves was an important consideration. Adhering to the principles of participative action research, researching with rather than on participants, was a core element in the research design, and ethically it echoes the question posed by Cohen *et al.*, (2011) who asked 'is the research *for* people and issues or *about* people and issues? (p. 86). This research was neither exclusively *for* nor *about* the participants, but attempted to balance benefit to the participants and the researcher.

4.5.3 Insider researcher

The researcher fitted Busher's description of an 'insider researcher' (Busher, 2002, p. 80). As a lecturer in the students' institution, the researcher was aware that occupying this role had the potential to influence the participants' responses and descriptions of experiences. Similarly, as the lecturer on the co-teaching elective module throughout which the research was undertaken, the perception of researcher expectation and bias had to be addressed. This was done by, from the outset, emphasising the research design principle of openness to learning, (as referenced on p. 72) and by emphasising the open-ended nature of the research, that the research was designed to explore and document the co-teaching experience rather than illustrate in a pre-determined manner that it was a worthwhile experience.

The students completed a written evaluation of their co-teaching experience as part of the module assessment. This written assignment formed part of the data-set accumulated by the researcher (in addition to the interviews, lesson reflections and vignettes). The ethical principle of academic freedom (Strike, 1990) and the

assessment criteria for the final essay were referenced to allay students' concerns regarding perceptions of bias or writing to the perceived preferences of the researcher. The themes addressed by the students in their final essays and the significant co-teaching episodes they referenced in the essays, reflected what they had written and articulated in their previous contributions. The continuity of focus and perspective evident in their contributions illustrates that the students reflected openly and consistently on their experience and were not

Informed consent, participants being fully appraised of the research commitment, the potential professional benefit accruing from participation and the researcher as insider were the four most significant ethical issues to be addressed in the design and conduct of this research. Judgements made throughout the research were informed by guidance from the ethical norms of the University and research literature.

4.6 Interpretation of data

The data collected ultimately needed to be analysed and interpreted. Just as assumptions and power perspectives can lead to interpreting research in a particular way, so too can they lead to a particular framework for the design and conduct and purpose of research. The ultimate implications and utility of the research depends on this framework and as Edwards (2000) points out the dependability and trustworthiness of conclusions are inseparable from the evidence on which they are based, which in turn were determined from the data produced. 'Evidence' in this context is not solely the data presented but the decisions around what constitutes data in the first instance, who decided what was of concern, how it is collected and interpreted.

When faced with a significant body of text data arising from interviews a researcher needs to adopt an analysis approach that best serves to address the key research questions while also remaining true to the sentiments expressed by the participants. As Lankshear and Knobel pointed out:

‘the most important thing about our data analysis strategy or design is that it must cohere with (or be consistent with) our research *purposes* (our research question/problem and our aim and objectives), as well as with our theoretical and conceptual framework and the kinds and amount of data we collect’ (2004, p. 28).

To paraphrase, the manner in which data is analysed must be such that it yields information appropriate to the research questions.

4.7 Analysis of data

Meaningful participation by the research participants has been established as one of the tenets influencing the design of this research. This acted as a counter balance to researcher bias. Feldman (1995) highlights the importance of detaching from pre-established interpretations and ‘to be able to move away from this knowledge and to be able to gain new understandings of the phenomena reflected in the data’ (Feldman, 1995, p. 64). As the researcher was involved in co-teaching science projects prior to this research, this was a salutary reminder of the primacy of the participants’ experience. It was important in this case to use a methodology which allowed the participants’ voices emerge distinctly without undue influence from the researcher. The suspicion of researcher’s bias had to be addressed – the research sought the participants’ perspectives on the value of co-teaching, not a validation of the researcher’s views on it. This research sought to investigate the learning benefits, if any of a co-teaching initiative – it sought to illuminate, to find out rather than ‘prove’ a point.

The emphasis which Bryant and Charmaz (2010) ascribe to the importance of the lived experience of research participants’ and affording primacy to the participants’ articulation of their reality, resonated with the principles guiding this research, and therefore indicate the appropriateness of grounded theory as a theoretical framework for this research. However grounded theory demands an iterative approach to data collection, one which follows the participants rather

than a pre-determined focus of the researcher. Grounded theory stresses an openness to allow the research be guided by the participants' interests rather than focussing more exclusively on the participants' experience of a phenomena of particular interest to the researcher. To adopt a grounded theory framework necessitated an flexibility and responsiveness to the research focus, one which in truth was not present in this research. Furthermore, despite its apparent simplicity, grounded theory is not a loose collection of research methods which can be followed recipe like for a theory to emerge. Interrelated collection and analysis of data, constant comparison and theoretical sampling and memoing are the basic tenets of grounded theory. While aspects of these guided the researcher, to describe the approach taken as grounded theory would be misleading.

The analysis of text and all forms of data are a challenge for the researcher. Cohen *et al.*, (2007) suggest that the kind of analysis undertaken depends on what you want the data to do. They suggest that *to describe, to portray, to prove or demonstrate or the generate themes* for example requires particular approaches and in turn determine how the analysis is presented. Fine (1992) reminds researchers of the need to go beyond merely recounting the voices or views of the participants and instead to identify deeper meaning and implications in their words, Feldman's 'intepretation creation' (1995).

A content analysis approach was adopted by the researcher. Krippendorff (2004) describes content analysis as 'a research technique for making replicable and more valid inferences from texts (or other meaningful matter) to the contexts of their use' (2004, p.18). It involves comparing, contrasting and categorising data (Schwandt, 2001) and similar to grounded theory it underlines the connection between the data and the context from which they emerge, thus ensuring that the meaning inferred from the text remains closely bound to the participants' context or the situation from which the text derives. For this researcher, this approach maintained proximity without prescribing set analysis methods, as is the case with grounded theory.

4.8 Theoretical propositions

Yin (2009) proposes four general strategies for the analysis of case study data. Of these, relying on theoretical propositions is the most appropriate for this case study. For Yin, theoretical propositions have influenced the research objectives, the research design and the research questions. For him, it is reasonable to structure the analysis of the data around these propositions.

Facing the accumulated data amassed through interviews, reflections, vignettes and lesson plans, these models provided the researcher with an approach to undertaking the daunting task of analysis. The analysis took the key questions as its cue but was responsive to the range of data which the participants yielded in response to these questions. Fundamental to their teaching (the other) and learning (from the other) was their motivation, their expectations and the professional knowledge they could share. These themes provide the initial lense through which the data was analysed.

The interview data was transcribed and vertical coding with NVivo was used to arrange the interview data following the process outlined below:

1. Each interview was given a label and followed a distinct naming convention to differentiate between partnership and student/ teacher responses.
2. All interviews were grouped into four partnerships. Each partnership consisted of three student interviews and two teacher interviews.
3. Each group of partnership interviews was imported into NVivo and read together.
4. 21 provisional nodes (codes) were created.
5. Each partnership (case study) was coded using common nodes.
6. Each node was extracted and organised with each case study documented within the node.

7. All content was re-read and 19 nodes were carried forward.

The following 19 codes emerged:

1. Class observation
 - Observation days – impact; impression; exposure; usefulness.
 - Student observation of the class teacher prior to teaching practice.
 - Teacher observation of the student while teaching.
2. Class teacher experience with teaching practice students
 - Advantages and disadvantages of having a teaching practice student in class.
 - Anxieties about taking a teaching practice student.
3. Classroom teacher and student discussion
 - Level of classroom teacher's influence on the subject being taught.
 - Expectations of interaction from both parties.
 - Observations and discussions overall.
 - Before co-teaching.
4. Co-teaching benefits.
5. Co-teaching challenges.
6. Co-teaching compared to usual TP.
7. Co-teaching expectation.
8. Co-teaching experience (merged in Co-teaching impact).
9. Co-teaching motivation.
10. Co-teaching science.
11. Co-teaching structure.
12. Expectations of class teacher.
 - TP student's expectation of the class teacher.
 - Class teacher's understanding of what they should provide to the TP student.
13. Feedback provided.

- Provision of feedback by the classroom teacher to the TP student and vice versa.

14. Interaction with TP class teacher (collapsed Class teacher presence and TP class teachers)

15. Student peer support.

- Support provided to and received from their peer group during TP.

16. Student reflection on Co-teaching.

17. Student support from school staff.

18. Teacher reflection on co-teaching.

- Interaction with the class teacher broadly.

19. TP structure.

- Commentary about TP structure, change and supervisory impact.

Having established these nineteen nodes the remaining data was then reviewed for similar themes. This served as a form of triangulation for the themes.

8. Six themes developed from these nodes. These were further reduced to three themes and the relevant data was presented under the headings:

- Relationships on placement and co-teaching
- Motivation for co-teaching participation
- Reflections on co-teaching

Each case was presented under these heading. These headings spoke to the participants' experience but documented rather than analysed it. As teacher learning was the research focus, the themes of partnership, situated learning and teacher knowledge were adopted as the analytical themes.

4.9 Summary

This chapter described how participants were selected and how co-teaching was conducted. The data collection methods and the approaches to data analysis

which were considered by the researcher were also discussed as was the actual approach taken to analysis. Having described the methods used for gathering the data and conducting the analysis, the next chapter presents the accumulated data on a case by case basis under the three themes highlighted above.

Chapter 5: Findings

The four case studies will be presented through three themes which have emerged through data emersion, analysis and code formation. These themes are:

- Relationships on placement and co-teaching
- Motivation for participating in co-teaching
- Reflections on co-teaching

The data on each theme will be presented separately for each case and in Chapter 5, the analysis is presented thematically rather than by case. This approach respects the intrinsic nature of each separate case while also enables us regard this co-teaching research as a unitary action research case study.

5.1 Case Study 1: Karen and Chloe

In this case study the student teacher is being referred to as Karen and the class teacher is Chloe.

5.1.1 Theme 1: Relationships on placement and on co-teaching

This theme addresses the type of relationship which developed between the student and teacher while on placement and between Karen, the student and Chloe her co-teacher.

5.1.1.1 Karen's placement experiences

Karen had four placements throughout the three year programme and each was in a different school and with different class level. She noted the limited opportunity on each placement to observe the teacher and class routines prior to assuming the role of (student) teacher herself. Karen felt that structured observation was not valued in the programme and certainly not by the teachers with whom she was placed.

It was very clear to me that these teachers did not want me in their class observing their teaching. For each of the three days I was observing my home teaching practice class, the teacher sent me home early as she didn't see the relevance in me sitting at the back of her class observing. (Final essay)

While the observation periods were not productive, because Karen undertook four separate placements this exposed her to a variety of teachers, teaching styles and contexts. Karen was able to differentiate between the teaching styles and interestingly assigned to the 'mature teacher' an older style of teaching while she considered she learned more from the more recent graduates. Her desire to put college recommendations into practice benchmarked her observation of the teachers.

Karen appreciated the value of observation but the teachers in whose classes she completed placements did not recognise the necessity of allowing her observe prior to beginning teaching. Here there is a mismatch of needs and priorities of the student teacher and class teacher, a mismatch which highlights the lack of communication between the college and the host teachers. More fundamental to the lack of communication is the failure of the college to alert the teachers to the significance of their role in assisting the students. Where there is an absence of guidance regarding roles, the default position for the teacher is to assist in an unobtrusive and passive manner.

Class teacher presence:

Karen's expectations of her final placement co-operating teacher indicate a strong desire to be taken care of and re-assured:

I wanted her to encourage me and to reassure me that I was doing ok...that she'd be in the classroom and if anything happened she'd help me to take care of any accident or whatever (Interview 1)

Karen confined her expectation to procedural or managerial aspects of teaching and casts the teacher in the role of facilitating Karen's teaching rather than alluding at this point to any expectation of professional dialogue.

In reality Karen experienced an ambivalence towards her by the class teacher, not the ever-present and reassuring mentor she expected. While welcoming Karen into the classroom, she was reluctant to fully embrace and mentor her, busying herself with other duties. Occasionally she stayed and observed Karen teaching. However, rather than be perturbed by the teacher's absence, Karen enjoyed the freedom and responsibility this allowed her:

I much preferred it to be honest. I had the class to myself, I could chance something that maybe wasn't on my lesson plan, maybe that I wouldn't do if my supervisor was there but nobody was watching

There is a sense that without the scrutiny or even presence of the teacher or supervisor, Karen felt she could take risks in her teaching. The perception of being monitored appeared to negatively impact on her teaching style.

Despite her earlier expectations, Karen preferred when the teacher was not present in the room and was more cautious in her approach when she was, commenting:

I didn't want to be put down so I was definitely more cautious when she was in the room definitely.

As the placement progressed, it became apparent to Karen that the class teacher was not providing the type of advice or affirmation which she sought:

After the first week I remember sitting down next to her and I said how do you think the week went, I wanted her to really tell me. I wanted to see after the first week especially, I had four more weeks. She said that it's going excellent and you're doing great - she didn't give me any specific details, it was kind of general.

This was of limited value to Karen. To hear *it's going excellent and you're doing great* was the closest Karen got to affirmation from the class teacher but without specific feedback to sustain such generous comment, it was of little value to Karen.

When she realised that the teacher's advice was more generic in nature she became more reluctant to approach her and their relationship changed:

I think I was less forthcoming looking for help after that when I realised that she wasn't going to give me specific detail. I wanted her to say your Irish is going great ..keep doing that .. or whatever .. but after each supervision visit I would show her my pink sheet (Written review from college supervisor) and the principal as well thinking they could give me more tips or whatever. I had never done that before but I felt this was my last shot I wanted to do as well as possible .. I have nothing to hide ..so I did show her that and she'd say well done or whatever, she wouldn't pick up on other tips..

Despite the lack of detailed feedback from either the teacher or the principal, Karen persisted with her efforts to seek their advice. She was looking for affirmation (*I wanted her to say your Irish is going great keep doing that*) but she was also keen to exploit all aspects of her placement as a learning opportunity for herself (*this was my last shot I wanted to do as well as possible*). Whether the teacher and principal felt unsure about their role or genuinely had no further advice to offer, it seemed to Karen that her approaches were being rebuffed.

While Karen began her final placement with the expectation that her teacher would offer reassurance to her, '*to encourage me ... to reassure me ...*' as that did not materialise she was content to have the freedom of the class though disappointed not to have additional feedback. It would appear that Karen was able to accept that the feedback from the teacher and principal was limited but what she found more difficult to accept was the lack of affirmation of her efforts – the lack of professional affirmation was felt personally:

To be honest I was working so hard I would have liked to get, to hear some more support from her.'

The teacher's ambivalence may be borne out of her uncertainty regarding her role. However Karen did experience greater support on previous TPs, *the teachers were younger, fresher out of college and could remember what it was like. (Interview 3)*

A number of dimensions coloured Karen's relationship with her teacher. She expected to receive productive feedback from the teacher and was disappointed when it didn't materialise. This key expectation wasn't met. However part of the reason for lack of feedback was the teacher's frequent absence from the room. This resulted in limited opportunities for the teacher to observe Karen's teaching but Karen was relieved not to have such scrutiny. Karen felt liberated by the teacher's absence and the compensation for the lack of feedback was a developing sense of responsibility and adventure in her teaching. It would appear that if constant scrutiny was the price of feedback, Karen was prepared to sacrifice this for the opportunity to teach in her own style and to try out different approaches which she would have been cautious about if the teacher was present. Karen was able to turn the deficit (lack of feedback) into a positive (freedom to try out approaches). However it appeared that Karen was unable to compensate for the absence of the affirmation of her efforts which she clearly longed for.

Karen's school experience wasn't entirely negative. While she was disappointed not to receive specific advice or receive affirmation for her efforts she was welcomed in the school:

...the minute I went in the principal shook my hand and said you're welcome and come into me anytime ..or the teachers offered me their books and resources...if I'd any questions .. if they could help me with anything ..that sort of thing.

While this openness didn't develop into discussions on pedagogies or methodologies specific to Karen's teaching and learning, she was included in staffroom break-time discussions.

In terms of support it is interesting that Karen was able to participate and was welcome to participate in public (staffroom) communities of professional dialogue. When in groups teachers spoke about their work, it is as if the public domain makes it easier for teachers to talk professionally, there is a sharing and a supporting which takes away the personal.

This valuable socialisation made Karen feel part of the school but didn't assuage her disappointment that it didn't transfer into immediate discussion of her own practice. In this context, the importance of her own peer support network which took on both a pastoral and pedagogic remit was a significant support for Karen.

5.1.1.2 Karen's relationship with her co-teacher, Chloe

The dynamic between Karen and Chloe while co-teaching was quite different. Karen acknowledged that the co-teacher was established to be different to the regular teaching practice but this didn't diminish the impact of the difference:

Chloe was adamant that I wasn't to be seen as a student teacher coming in, that I was the science teacher, she really makes me feel that I am equal...'(Interview 2).

Even though Karen acknowledged that Chloe was making every effort to develop an equal partnership, she also noted:

...she has taught some of the lessons before, whereas I wouldn't have and she would say this worked for me that last time so I am happy to go along with that, you know I can't argue, I haven't done it before' (Interview 2)

Here Karen is acknowledging the reality that Chloe has more experience but in doing so she questions the illusion of being equal – equal and agreed on the aims

and intent of the instruction but unequal in terms of experience and ability to promote students' learning. Despite this, Karen felt she learned more from Chloe:

'than any other teacher that I met on TP and I know that's because maybe I was working with her as well rather than then teacher sitting down at the back of the class.'(Interview 3)

Karen is acknowledging the benefit of being part of a community of practice. She identified the process of structured joint planning as being of significant assistance. The co-teachers were provided with planning templates which assisted in identifying lesson stages and assisted in distribution of roles within a lesson and post-lesson evaluation templates were also provided. Karen acknowledged that these helped scaffold her learning in comparison to her TP experience where hours could be spent preparing a lesson but no *learning to teach* value may have been accruing from it because little reflection took place:

I think we need support, we are only trainee teachers and it's teaching practice, not teaching perfect, so you need to learn as you go along. I really found that the templates that you (the researcher) made up for us, Chloe and I were very focussed in the evaluations, going through the stages, what was good or bad, positive or how we'd change it...but whereas when you are on TP you do the lesson, and you could have spent an hour typing out the lesson plan, and then it's kind of forgotten about...

Karen identifies working with Chloe on planning as a learning experience however in later interviews qualifies her comments regarding *learning from* Chloe.

5.1.1.3 Chloe's relationships with her placement students

Chloe recalls her experience as a student teacher when elaborating on her reasons for taking students into her class:

Initially a lot of it (the support I give to students) comes from my own experience as a student and what sort of support I would like to have received. I didn't look for much help because I was scared of approaching the teachers.

Chloe was keen to ensure that the students in her class received the type of support she would have liked to receive herself as a student. It is as if she is now pleased to undertake the role of supportive teacher which she felt was missing in her own student placement experience. Her past experience, both positive and less positive, inspired her continued participation in placements:

I remember how it felt like , I know for a fact on my first day I was given the roll book and I didn't know what to do with it. My motivation is to help students, to make it easier for them to accept their responsibility, so that they don't feel overwhelmed. (Interview 1)

The sense of engaging with students as a personal trait was communicated by Chloe. Concern for the other, either the student on placement or her pupils, are dominant for Chloe. At no point did she mention her own learning or accepting students as a learning opportunity for herself. She implies a sense of obligation to assist with the profession (*for them to accept their responsibility*), but in a sense she wishes to help so that others avoid the difficulties she experienced herself. She doesn't articulate a sense of obligation to the profession, it is her desire to personally support the students, arising from her own experience.

For her, the most significant thing she did for the student was to make her feel welcome, but also impress on her the importance of maintaining the work rate of the class. She spoke of giving her the '*gift*' of the class.

Chloe's motivation to assist with school placement however did not mean that she didn't have concerns about the student's performance. Chloe's concern about taking a student stemmed from her:

'strong sense of obligation to the kids, that they'd learn, be safe and have a positive experience.. I hope they are as dedicated for the five weeks as I am to my kids.

The student's sense of commitment was a key issues for Chloe – *she could be a good teacher but if she wasn't as driven as I am, it would have bothered me.*

Chloe expected her student to match her in terms of dedication and ability. She states:

I hope she will be able to teach what I would be doing and giving them something of equal quality. (Interview 1)

Even though she is now revising material addressed by the student as she feels it wasn't understood by all pupils, Chloe can make allowances for this:

There was a general level of learning across the board, its differentiation, its experience, it's not her fault that they didn't get it, I feel I have to go back and redo stuff but they got an experience from her that they wouldn't have got from me. (Interview 1)

Chloe acknowledges that she learned from the student but also acknowledges that it was positive for the pupils to experience a different teaching approach. This openness did not prevent Chloe from articulating some disappointments regarding the student's approach but overall she viewed it positively.

From her observation at the back of the class, Chloe wanted to ensure that:

they were all getting attention, that they were behaving themselves and that the weaker kids weren't forgotten...my two special needs pupils, they were getting an awful lot of attention whereas the weaker group weren't getting as much attention at all...

Her observations formed the basis of a discussion between Chloe and her student. While Chloe was a welcoming and helpful co-operating teacher, her primary

concern remained the welfare and learning of her pupils and her interactions with the student were premised on promoting their learning.

While Chloe intended to speak to her student about these issues, she was also cognisant of the student's perspective as a person on what many find to be a stressful placement:

You are aware that they have their tasks to do and they have inspectors coming in. Some students mightn't want a teacher at the back of the class. It's difficult enough going into a classroom, having an adult watching you all the time to see how you are doing. It's difficult to approach a student and suggest well maybe you should try this and you don't want them to feel like you are criticising them. (Interview 2)

As it turned out, Chloe's student 'asked an awful lot and I gave an awful lot and I had no problem with that...it became a natural thing that we'd speak'.

From the perspectives of Karen as a student on placement and Chloe as a co-operating teacher, though in different roles, it is clear that they had different experiences. Chloe's engagement with her student is in contrast to the distance experienced by Karen. The level of engagement is locally determined and in Karen's case that resulted in minimal engagement. Chloe and her student illustrated openness to engagement, an openness also illustrated by Karen though not reciprocated by her class teacher. This contrasting experience illustrates that in the absence of guidelines or prescribed roles, it cannot be presumed that a beneficial engagement between student and teacher will develop.

5.1.1.4 Chloe's Relationship with her co-teacher, Karen

For Chloe the co-teaching experience was completely different from her placement experience. Her first response to the difference was to categorise her relationship with Karen as that of friend:

From having students in my class, I think this was a completely different experience I would say that she's a friend and I'd like to see how she gets on in the future. I'm not sure how much she got from me but I hope she learned something.

Chloe is clear about the personal – they got on as friends in the classroom; however regarding the professional she was unsure if Karen learned from her. Interestingly Chloe makes no reference to learning from Karen but shares Karen's insecurity about whether or not she contributed to the other's learning.

Chloe acknowledges that it took time for their professional relationship to develop but describes how they progressed from nervousness and not knowing each other to the 'gelling of working together' Chloe describes how they devoted out of school time to planning:

It changed from me the teacher and Karen the student to the two of us doing it together. (Interview 2).

Even though the placement student was in Chloe's class for five weeks, she describes a more formal relationship with that student in comparison to her relationship with Karen. The student discussed topics to be taught, sought advice, discussed her teaching approaches and was generally very open to dialogue with Chloe. Chloe describes how she discussed approaches to maths, inclusion, phonics with the student and how impressed she was with the student's eagerness and commitment. However it appeared that their relationship remained professional. In her final evaluation Chloe compares her relationship with both student teachers:

During the Nov./ Dec. teaching practice I was reduced to the role of observer. I could only advise on the concepts I wished the student to cover, I could not assign nor influence in any way how best to teach these concepts.

This (co-teaching) experience was completely different. I am confident in the lessons taught, I do not feel the need to review or revise any of the lessons

taught, as I have done with some elements of what was taught during the Nov./Dec. teaching practice. I feel able to call my co-teacher a friend and have an interest in her future and in how well she succeeds in her career, and would be glad to help her in any future way that I could. The student teacher from the Nov./Dec. practice, who was an excellent one, I have no investment made in her and while I wish her well, I feel I do not know her and have made little or no impact on her, for better or worse.

'Reduced to the role of observer' indicates how Chloe felt side-lined, marginalised and ignored to the extent that she had no influence over the student's content or approaches. When she compares the student on placement with the co-teaching experience she had with Karen there are the two significant contrasts:

- the pupils' learning (*'struggling badly'* compares with *'no need to revise or review any lessons taught'*) and
- her relationship with both students (*'no investment made in her, I feel I do not know her and have made little or no impact on her, for better or worse'* in comparison to *'I feel able to call my co-teacher a friend and have an interest in her future and in how well she succeeds in her career'*).

Chloe highlighted the shared commitment and additional time devoted to co-teaching by herself and Karen and this created a shared understanding and an appreciation of each other's efforts. Because the co-teaching promoted dialogue in planning and evaluating lessons and co-teaching lessons, the participants had structured engagements. In this case, both co-teachers welcomed this interaction in comparison to their placement experiences. Their experience illustrates that when interaction is structured and recognised as a requirement it can lead to a positive experience for both co-teachers, though, significantly, Chloe is unable to articulate what are the pedagogical benefits to herself of this positive relationship.

5.1.2 Theme 2: Motivation for participating in co-teaching

This theme explores the reasons which motivated the participants' involvement.

5.1.2.1 Karen's Motivation

Opportunity to learn

On each placement Karen was keen to learn from her teachers and she saw co-teaching as an opportunity to continue this learning. Being a constant learner is an important trait for Karen and referring to her motivation for getting involved in the co-teaching project, Karen states in her final essay:

Fundamentally I felt that as a final year student this was my last opportunity to engage in a teaching practice of sorts, to learn as much as I could about teaching, especially about teaching science.

Karen sees the co-teaching initiative as an opportunity to learn more from other teachers but also as an opportunity to become more secure herself in her career choice.

Science teaching

Science as the subject of choice for co-teaching was significant in Karen's engagement with the experience, she wanted to:

Learn more about teaching science itself rather than any other subject, to become more familiar with the stages and different approaches and even just the different topics that I haven't taught before. I definitely want to be more comfortable with science and learn more from a qualified teacher. (Interview 1)

Karen's motivation from the science perspective is to address a perceived deficit, it is an aspect of the curriculum at which she wishes to become more proficient. She does not identify it as part of the curriculum in which she has expertise to

share with her co-teacher. In the course of the project Karen reflected on the science aspect of it and was able to critique the Five Part Lesson (the structure in used for the science lessons) and also identified the experience teaching science as one of the benefits accruing from her participation in the project.

Rather than consider that having completed all her placements she can now concentrate on other aspects of her studies, Karen prioritised classroom learning. Unlike other students who would deliberately avoid engaging with areas of the curriculum with which they were least comfortable, Karen deliberately choose the science course because she recognised it as an area she need to develop.

Contribution to co-teacher's learning

Karen's understanding of co-teaching encompasses both the '*learning from*' and '*contributing to*' dimension. Even though she didn't articulate '*contributing to*' her co-teacher as a motivation for becoming involved, in her description of her understanding of co-teaching she does reference *learning from* her co-teacher as well as expressing the hope that:

maybe I could teach them something that's a new methodology and we can both work together to put these into practice. (Interview 1)

5.1.2.2 Chloe's motivation

Chloe's stated motivation for becoming involved are in the helping domain. She believes in mentoring 'wholeheartedly' and wants to help so that the student doesn't feel 'overwhelmed'. Even though this highlights her helper perspective in describing her understanding of co-teaching, Chloe recognises that the co-teacher, though a student, will have an equal footing. She is clear that she wants the student to feel welcomed and hopes the student will show initiative:

they are coming out as a student but they are not in the classroom as a student they are in the classroom as a teacher and that its equal footing, you know that they wouldn't have that attitude that would have been there for

the five weeks that ok you're the teacher what you say goes, that's not what I'm interested in. (Chloe Interview 1)

Chloe wants to assist the student but is clear she doesn't want a dependent student either. Unlike Karen, Chloe was unable to articulate a learning to teach or a science education aspect to her motivation. As she had little experience of formally collaborating with colleagues, she welcomed this as an opportunity to *'see what it's like to have another teacher in the classroom and to learn how to work with another teacher'* (Chloe, Interview 1). Though her motivation is less focussed than Karen's, they share a common perspective on co-teaching, both are eager to make it a mutually beneficial learning experience. Unlike the formal placement, here there is a shared understanding of roles.

5.1.3 Theme 3: Reflecting on the co-teaching experience

This theme notes the range of learning-to-teach opportunities that the co-teaching experience presented to both co-teachers.

5.1.3.1 Karen's experience

Freedom to learn

Karen welcomed the opportunity to teach without the anxiety of supervision. She considered that supervision created a 'performance' (Interview 1) in which both the student and pupils participate. In contrast she considered that co-teaching gave her *'a good opportunity to try out a few things, learn myself and teach the children and maybe the other teacher as well'*. Clearly one of the negative aspects of supervision for Karen is the impact it has on her ability to teach in a manner that she is comfortable with.

In her second interview Karen returned to the absence of supervision during co-teaching:

It's great. The fact that we don't have someone watching us, if we decide to go over time with something, have a look at our notes. I might want to ask Chloe a question, it is more relaxed and informal as well. That kind of makes us learn more as well, we are learning from each other, rather than trying to pretend that we know it all in front of a supervisor, so it's much more beneficial not to have somebody watching us. (Interview 2).

Karen has a monitorial perspective on supervision and can only see advantages in not having supervision. Most important for Karen is the freedom it gives her to see co-teaching as a learning opportunity. For Karen the teaching experience is a learning opportunity but the presence of a supervisor diverts her focus from her as a teacher to a performer, performing for the supervisor rather than learning from her experience.

For Karen, taking chances and risk-taking are teaching traits that are minimised by supervision, or by the teacher's presence on the formal placement. In her final interview she refers to the flexibility towards executing lessons in the precise manner she had planned with Chloe. Referring to Chloe's spontaneity during lessons and willingness to explore tangents, she says:

We would have planned one thing and Chloe would have thought of something else and she'd just say it to me and we'd just go with it, whereas if we were being supervised we wouldn't have taken that chance and maybe our chance worked you know and that was a positive thing to come out of not being supervised.

Teaching style incompatibility

Openness to adapting lessons as they developed was largely welcomed by Karen and she saw that this would not happen in regular supervised placement. While she welcomed it, the tendency for her co-teacher to go 'off-script' also frustrated Karen and she felt that if supervision was part of the co-teaching process this

tendency to 'venture off' would occur less often. She would have welcomed a clearer focus from her co-teacher:

I think when you are going to do a venture like this, you have to decide ok maybe my class might be very casual but for the one hour we are doing this we are going to try and make a go of it , we can't venture off on something else , we can't all get out of our seats. I think you know, it's up to Chloe to teach in whatever way and I'm sure that that goes on in every classroom but for the one hour that I was there I would have thought that she would have made an effort just to make sure that we did the lesson the best way we could together.

The absence of supervision allowed Karen and Chloe teach in a less inhibited manner, to pursue ideas which came up in lessons and not be overly concerned. However, it appeared that Chloe's tendency to venture off was such that Karen felt the lesson aims were jeopardised. Karen welcomed the spontaneity to some extent, but questioned if it was productive for her as a teacher learner. The discipline of supervision may, in Karen's opinion, have curbed this tendency.

5.1.3.2 Learning from her co-teacher

Observing

Once the co-teaching began, the difference of learning from a teacher by working with her became apparent to Karen.

I really feel that I have learned more from Chloe than any other teacher that I met on Teaching Practice and I know that's because maybe I was working with her as well rather than the teacher sitting down at the back of the class but yea, I have learned more from her. (Interview 2)

Working with her co-teacher gave Karen an insight into Chloe's teacher knowledge and also allowed her focus on teaching rather than organising for teaching. She says:

She knows exactly what works with her class and what doesn't work, so her background experience is a great help. I don't feel I need to work out strategies of classroom management...

Though Karen may not be involved in some of the organisational aspects of lessons she does learn from Chloe's approach.

I think I am learning even basic general teaching things, how she organises the classroom and talking to the children, small things like that...

Karen is acknowledging Chloe's experience, the benefit of observing the 'small' things like the teachers interaction with the pupils. As a final year student, having completed all of her placements, she is in the position to observe and interpret the teacher's actions

I am more aware of what she is doing and why she is doing it maybe...

These are examples of learning from the teacher's actions and having the experience to recognise and interpret these actions. The observer learns, the teacher does not break down or deconstruct their actions on behalf of the co-teacher who is now the learner. However, while this occurs in co-teaching there is nothing unique to co-teaching about this format of teacher modelling or learning. It is Karen's previous class experience which allows her see the teacher actions.

Co-teaching in action

In the co-teaching sessions, the roles were divided between both teachers but as the class teacher had greater knowledge of the pupils and constant access to them, certain roles were undertaken by the class teacher. Karen could by-pass the organisational aspects of setting up lessons and was able to capitalise on the teacher's insight, and focus on her actual teaching. In her comments Karen describes classroom management and organisational issues as mundane necessities which have to be addressed before the real business of teaching and learning can occur.

Though Karen is content not to have to address these issues, she does benefit from seeing how Chloe addresses them:

I think we are quite different in our approaches, I am very structured and I like to be very organised and Chloe is more ad hoc, plans as she goes along she doesn't have things set out whereas I would be used to having things written down. The way I managed my home TP classroom, I had them in teams for the five weeks, I knew exactly there was a different leader every week, that sort of thing was re-arranged, whereas Chloe would go around and say ok you three can be in this group ..oh no actually you can come out here, she would change things around as she goes, but it worked well, just a different way of doing it. (Interview 2).

As a final year student Karen was able to evaluate the practices she saw and evaluate them in the context of her own teaching style and what she considered best practice. Karen began to identify her own approach in contrast to Chloe's.

As a student in the class for an hour each week Karen had high expectations about what should occur in that time and was frustrated by the classroom dynamic which she described as 'casual'. Speaking about Chloe's class she said:

I would have thought that she would have made an effort just to make sure that we did the lesson the best way we could together and not get distracted or whatever. (Interview 3)

There is an element of frustration in Karen's remark but the contrast helped Karen identify what type of practices she preferred herself. She returned to this theme of difference and frustration in one of her vignettes. Here she describes what happened during the lesson on woodlice:

At times there would have been up to fifteen children surrounding Chloe as she walked around the classroom, all bidding for attention to tell her some of their personal stories of when they were at the playground they saw such a bug or there was a spider in their kitchen last night etc. Other children were

walking around the room, talking to their friends or doing other activities. The children were off task, talking out of turn, out of their places.

It was almost sad for me watch a lesson slip away like it did in front of my eyes. Over the past three years in (College) I have become accustomed to preparing lessons, I then picture the lesson in my head and I always have certain aims and objectives which I hope to achieve. I know that if I am teaching a Gaeilge lesson I want the children to learn a new word or phrase etc... if it is a science lesson I want the children to develop their process skills by exploring materials, identifying variables, or carrying out an experiment.
(Lesson 6 vignette)

Karen returned to this lesson in her final evaluation and said:

Throughout this disruptive episode I felt completely useless. I wanted to tell the pupils to stop touching the teacher, to sit down at their places, stop talking out of turn and focus their attention to the lesson Chloe and I had planned. But what could I do ? This was Chloe's class, it was her prerogative to conduct the lessons in her classroom any way she wanted. (Final essay)

Here Karen is defining herself in opposition to her co-teacher – she is organised, strict and focussed in comparison to Chloe. This may have allowed Karen focus on her values as a teacher but this episode also underlined the problematic power dynamics within co-teaching. Clearly Karen felt powerless to assert any authority in this situation. As part of the project the students read a number of articles on co-teaching. Regarding this power dynamic, Karen referenced Roth (2001) in her final essay to highlight that her experience with Chloe was not as Roth described the partnership between the apprentice and veteran teachers in which the novices ‘*experience the class at the elbow of another practitioner and thereby develop a sense of the practice through the eyes of the other*’ (2001, p. 15). Karen was observing practice which didn’t impress her but was able to define herself in opposition to what she observed but still felt powerless to change the dynamic in the class. Karen respected the right Chloe had to maintain her class in this manner

but didn't consider it effective nor did she consider she could articulate that view to Chloe.

5.1.3.3 Restrictions on learning-to-teach

Karen and Chloe undertook different stages of each lesson – the five part lesson model was conducive to separating the lesson components. In recognition of her experience with the pupils, Chloe '*took on the role as classroom leader, organiser and disciplinarian*' (Final essay). Karen accepted this and recognised that as the class teacher, Chloe had the advantage of knowing the class dynamics, the pupils and their needs. This insider knowledge, familiarity with the class, impacted on how the lesson roles were assigned with Chloe taking the lead in planning the investigation, conducting the investigation and the plenary and review of the lesson. Karen did the *engage* and *demonstrate* stages.

While Karen saw the logic in this assigning of roles, as someone hoping to experience different methodologies, she felt restricted by the necessity to share the teaching roles. Conscious of the class teacher's desire to learn from the project as well, Karen felt the compromise in approaches and actual sharing of roles '*inhibited my learning to teach experience*' ; she '*sometimes felt restricted and often considered that I would do something very differently if I was teaching on my own in the classroom*' (final essay). Later she states that as she '*had to abide by Chloe's wishes, I felt the learning to teach experience for me was diluted, even smothered*' (final essay).

When asked to suggest improvements to the co-teaching project Karen cited the 'selection of teachers' as one issue. Without actually referring to any specific incident she notes:

If co-teaching is to be used as a learning to teach experience for student teachers I think it is imperative that the qualified teacher is selected for the credentials in the classroom, there should be a specific selection process if everyone involved is to benefit from the venture' (final essay).

Though Karen developed a good personal relationship with her co-teacher, she questioned her capacity to be an effective co-teacher from whom the partner co-teacher would learn. Karen raises a point which is valid for co-teaching partnerships but also raises the wider question of the consistency of the quality of modelling or feedback which student on placement receive from co-operating teachers.

5.1.3.4 Karen's contributing to her co-teacher's learning

From the beginning Karen was clear that she wanted to contribute to Chloe's learning and she identified approaches to groupwork and talk strategies as two issues she hoped to bring to the teaching for the benefit of her partner. Despite this initial expectation, in her second interview she observes:

I just thought I could teach her more .. I feel bad about that ..that I am not bringing more to it ..(Interview 2)

It is interesting that Karen speaks about bringing 'new' approaches to Chloe rather than focussing attention on Chloe's classroom management issues which appear, for Karen, to be problematic. The co-teaching sessions were designed around the Five Part Lesson approach and promoted the use of talk strategies. Karen's initial optimism that she would be the college student with fresh ideas for the class teacher dissipated as she felt that Chloe already had the methodologies she was keen on, the talk strategies were an aspect of teaching new to Chloe. As Karen noted:

The one thing that she didn't know were the talking strategies – we tried to implement those alright, but I think I took charge of it, I explained to her during the planning day what it was and she was saying yea, we'll give it a go.. but we never really got to fully implement them.. which I was disappointed about, you know, the one thing I thought that I could bring.. it didn't really work out ..

The Five Part Lesson and talk strategies were some of the new methodologies with which the students were more familiar and Karen had some success with this:

One good thing was that I suggested that we start the Engage section (Part One of the Five Part lesson) with a story or a poem to get their attention, and Chloe liked that and we did that for most sessions... (Interview 3)

However, Karen identified this as a choice relating to a lesson introduction rather than a new methodology or strategy. She gave more significance to talk strategies but considered that she had less success in implementing those.

The participants were asked to complete evaluations after each teaching session. In Karen's experience these focussed more on the lesson format and pupils' learning than co-teachers' learning. Though completed jointly, they didn't stimulate collaborative reflection on teaching. In her second interview Karen does refer to an occasion in which she made specific reference to Chloe's teaching:

I did say to her that I liked the way she, I think I mentioned it in one of the evaluations, how she gets the child up to be the teacher. I told her I like that and I told her I liked how she did something else,... but she never, now maybe she didn't like it so she didn't want to say anything but she'd never say, oh Karen I never thought of doing that before, you did that well, but maybe that's because she's seen it before I'm not sure ..

Karen is uncertain about her contribution to her co-teacher and clearly would like to see her contribution acknowledged. While her efforts on her previous formal placement went unacknowledged as far as she was concerned, Karen had the expectation that in co-teaching her efforts and accomplishments would be affirmed. Despite Chloe's perception of herself as a *helper*, Karen didn't experience her affirmation.

Karen remained positive about co-teaching as a learning to teach experience but her doubts about her own contribution to her co-teacher's learning persisted. She acknowledges that she learned more from Chloe than any other teacher and

identified the opportunity to work with the teacher as a significant factor. She considers herself to be '*much more confident in myself now*' and has identified herself as '*this sort of teacher and that's ok there are so many different types of teacher*' (Interview 3). However her doubts persisted and she was keen to reassure Chloe that she learned from her:

I hope Chloe learned something from me. I just feel that like, ahm.. even after each lesson in the evaluation I'd say that was great Chloe I learned about that and then she'd say hmm..I never got the impression she said oh Karen I really liked the way you did this ..I'm going to try it..(Interview 3).

5.1.3.5 Chloe's co-teaching experience

In her evaluation of co-teaching, Chloe emphasised the relationship which developed between herself and Karen, describing her as a friend with whom she would like to stay in touch. She identifies the commitment illustrated by both as forging a common bond.

The first lesson was very regimented but the kids really enjoyed it. Then with the second lesson we got in to each others flow and then we decided to do a planning day. We had a planning day which was more informal for both of us. She had an input into it and so did I and there was also a sharing of experiences outside of college. The gelling of working together and planning together meant that we were both responsible for the lessons. It changed from me the teacher and Kate the student to the two of us doing it together.
Chloe, Interview 2.

Spending time together to plan sessions helped to create a shared understanding and a professional respect for each other. Chloe identifies a good personal relationship as both an outcome of the process and as a reason for its success, from her perspective. However she is unable to articulate how she benefitted as a teacher and what professional knowledge she developed:

Well I know we both learned from it from a teaching point of view because it was teaching science and I have to say I really enjoyed the teaching of science aspect of it. The benefit I would hope would mostly be on the teaching with somebody else side of it. Even for myself to learn how to get al.,ong with somebody else, how to break up the lesson plans, how to work within each other and offer ideas. We did have good ideas and there was a sense of flowing in and out of each other, we would input on each other's sections. It just felt like there was two of us teaching not two of us separate. Chloe, Interview 2.

Chloe is positive about the experience but cannot identify how she benefitted in a particular manner. Nor does she illustrate the depth of analysis or reflection which Karen exhibited and which led her to critical comment about Chloe's teaching. Chloe was a willing participant in the research but as she didn't articulate immediate and specific learning goals at the outset, when reviewing her participation she didn't go beyond the sense of pastoral satisfaction. It may be the case that for teacher learning to occur, a clear statement of learning objective which can be reviewed is required to keep the teacher focussed.

5.2 Case study 2: Ned and Naoise

In this case study the student teacher is being referred to as Ned and the class teacher is Naoise.

5.2.1 Theme 1: Relationships on placement and co-teaching

5.2.1.1 Ned's placement experience

Support from the class teacher:

Similar to the other students Ned was welcomed in his placement school. Facilities were made available to him and he was welcome in the staffroom.

Ned describes how his host teacher was busy on other school duties, similar to Karen's experience. However his teacher did observe a number of lessons and in particular his approach to the English curriculum, oral language and poetry, as the class teacher's approach was quite different to his. Ned attributes their age difference as the key to their methodological differences:

She'd be at the retiring end of the spectrum ..and she had her own approaches so I wasn't focussing on her methodologies as the structural arrangements.

This class teacher also offered affirming but limited comments to Ned rather than structured feedback. One of her ways of praising him was to say *it's a pity he wasn't there for that* , referring to the supervisor. He did find her open to his questions but felt,

.. rarely would she have offered anything very extensive ..

When recounting his experience with this teacher in his first interview Ned indicated no sense of disappointment, he wasn't expecting or needing particular advice.

5.2.1.2 Ned's relationship with his co-teacher, Naoise:

Ned makes an interesting comparison in his relationship with both class teachers. His placement teacher, while supportive, is also mindful of her class while he interpreted Naoise's advice as more focused on him as a teacher:

I would say that by the end of the co-teaching, I preferred that relationship with my co-teacher than the one I had with my class teacher on TP , the relationship with Naoise would have been , while professional , more warmer and open than the one I would have had on home TP. I always knew that I had someone else's class and that any kind of pointers that I was given were while to better myself were certainly going to advantage the class as well. Naoise would have said things I should be bearing in mind for September and October and as well as me in my first year, whereas any pointers or information or hints I got on home TP would have been with the view to getting me to the 5th

of Dec. (last day of placement) as comfortable as possible , and the pupils too.. (Interview 3)

On placement, Ned felt he had the class on loan and the advice offered was with a view to ensuring that the standards were maintained whereas in co-teaching, teachers' learning was the focus of the discussion with Naoise.

Ned was clear that it was the opportunity to work with a teacher, rather than take over from a teacher which appeared to create the learning opportunity for him:

The key difference I suppose is that you are learning from a practitioner as opposed to taking a practitioner's class and moving on and trying your own stuff.

Ned identified trust and respect as key issues. He characterised the initial joint evaluations between the co-teachers as focusing on children's learning rather than on the co-teacher's actions. They were reluctant to be forthright about each other's teaching because they didn't know each other. However, this fear of overstepping the mark changed in time:

When the dynamic in the co-teaching with the five part lesson improved certainly I think the dynamic in the planning and the evaluations improved ..

When reviewing the initiative Ned identified the creation of a trusting relationship as the most significant issue in co-teaching. He identified time to develop relationships as a constraint in college-school co-teaching partnerships:

Another negative in the widespread use of co-teaching in teacher training is the lack of opportunity for student and teacher to build the trusting relationship needed for a successful outcome. It would be unreasonable to expect two adults to work together, sharing the planning, instruction, organisation and evaluation, as well as physical space, without adequate opportunity to get to know one another.

5.2.1.3 Naoise's relationships with her placement students

In this theme Naoise discusses her experience with students' on placement and in particular speaks about the relationship and type of interaction she had with the student placed in her class for the five week TP.

Concerned facilitation:

Naoise frequently facilitated students on placement and this was the first occasion on which she facilitated a student for the five week placement. It brought new concerns about impact on her class:

one of my worries going into it, that at the end of the five weeks I would have lost them or it could take me a while to get back into it again....

The student's classroom management was a key concern, particularly how it would impact on the rate of learning for the five weeks. Naoise stressed this with the student at their pre-placement consultation meeting:

The one thing I stressed when she came out was good classroom management and good discipline with the children because if she doesn't have them in the first week they'll be gone for the five weeks and they'll learn nothing...

In acknowledging these concerns, Naoise also recognised she was

lucky with the student – she was very good and very capable, but if you had someone who wasn't .. you know your class are losing out a lot, in terms of work, discipline .. but she was great so I had no problems.

Naoise is similar to Chloe in her viewing placement as fundamentally a break in her teaching time with the pupils, and one during which she hopes the usual standards will be maintained.

As a relatively recent graduate of ten years, Naoise could empathise with the students on placement and this partly motivated her willingness to engage with them. Naoise wanted to help:

just to make it as easy as I can...it wasn't that long since I was there so I knew what it was like.'

Naoise considers her role as a practical one and sees it as:

Guiding I suppose, giving ideas on how to teach something..you might have practical ideas on how to do something ..classroom management is a big thing ..giving out sheets.. how to organise groupwork, and for art, art can be a bit scatty ...

While she never overtly observed the student teaching, *I never sat at the back of the room and watched*, she did keep an eye on proceedings. Indicating that classroom management was always a concern she states:

I would always be there for PE and ART and DRAMA, things like that when kids would be out of their desk . And I'd like to show the children that I'm there too, just in case there are any discipline issues or anything like that

Naoise's apparent reticence may stem from the lack of clarity regarding her role with a student on placement. They have no formal role and this may explain why Naoise isn't pro-active in giving advice and apparently delighted when her advice was sought. The relationship between teacher and student is full of contesting tensions. Naoise would like to help but doesn't want to interfere. The lack of clarity in her role is fundamental to these uncertainties.

As it transpired Naoise developed a good relationship with her five week placement student and seemed pleased that the student would ask for her advice.

We'd have a chat every day, more as friends than as feedback. You'd like her to get on as well as she could, because she was so good and we got on well,

you'd just want the best for her. She put a lot of work into it so she deserved the best feedback she could get. (Interview 1)

The different relationship demanded by placement and co-teaching influenced the nature of the interaction between Naoise and the respective students. Naoise's peripheral involvement with the placement student limited her role to '*a tip here and there*'. In the absence of a formal relationship between the teacher and the placement student, the teacher is unsure of their remit and their possible positive input goes untapped.

5.2.1.4 Naoise's relationship with her co-teacher, Ned

On the other hand, with Ned she was involved in each lesson and '*aware of what was going on in every lesson*'. In this case it seems that engagement at a detailed planning and teaching level appears to have created an equality which downplayed Naoise's expertise. As they constituted '*more of an equal partnership*' Naoise didn't think it appropriate to make comments on Ned's teaching, it was as if Naoise was reluctant to overtly lead their partnership lest she overshadow Ned.

There was a professional openness between Naoise and Ned. She considered that Ned had '*obviously picked science for a reason. He was into it.*' Naoise recognised Ned's expertise and enthusiasm and welcomed it :

So I said I would have a lot to learn from him and his expertise in it. It was good because it wasn't just me being the teacher and him being the student.

It appears that because the relationship was established as one of equals from the beginning, Naoise recognised Ned as a co-teacher. From the outset it appears that Naoise viewed the relationship as different from the traditional student/teacher relationship, not so much in terms of what she offered to the student, though she does say *I never said anything about his teaching or anything like that*, but in terms of being open to learning from the student.

5.2.2 Theme 2: Motivation for participation in co-teaching

This theme explores the motivating factors which drew Ned and Naoise to co-teaching.

5.2.2.1: Ned's motivation

Freedom to learn:

When asked about his expectations of co-teaching Ned was able to speak about it as a learning to teach experience without the pressure of supervision. The lack of supervision was welcomed:

for me since there won't be somebody marking us at the bottom of the class we could try something a little different . if it goes wrong we can rectify it.

Similar to Karen's sentiments, for Ned supervision is inhibiting and stifling, its absence allows him *try something different* and be *a small bit more flexible* . He expected co-teaching to afford him a flexibility and a freedom to learn which he didn't associate with formal placements. Ned considered that science investigations required a flexibility which wasn't available on placements:

The nature of pupil-centred investigations and activities demand a flexibility and understanding. The simplest experiments do not always turn out as expected, but can be a valuable learning tool, nonetheless. I expected this freedom would enhance the teaching/learning experience and promote valuable discussion and reflection.

In his final interview Ned was asked how the experience matched his expectations:

I did teach extra science, I did explore methodologies that I would probably have been afraid to explore on teaching practice for fear that somebody would walk in the door that moment.

Similar to others, the absence of the spectre of supervision allows him to relax and really focus on the lesson. The quality of his preparation is not different but here he describes how there was a greater authenticity or purpose behind his planning:

The planning is different, I go out on there on a Tuesday so I have Wed., Thursday and Friday to plan or reflect, I have time to reach a decision or change it. There is plenty to bounce another idea off Naoise, before the Tuesday - it's a great feeling that the TP didn't have.

Science teaching:

Ned's enthusiasm for teaching science was a key motivating factor for his participation in the co-teaching project, rather than the opportunity to work closely with another teacher:

Co-teaching is less of a consideration than the fact that it is science .. but it was a consideration alright .. it was something that we hadn't had over the three years .. the observation days are the closest we come to it .. co-teaching was a bit of a draw but science was the primary issue (Initial interview)

Ned's focus changed slightly in the course of the project and he valued the interaction with his co-teacher as much as the science teaching. Collaborating and learning from an experienced teacher and *shared delivery* and opportunities for *reflection and discussion* were emphasised:

My main motivation for involvement in the co-teaching process was the opportunity to involve myself in the shared delivery of science lessons. Unlike science lessons during the teaching practice modules, the co-teaching model offered opportunity for broader choice, more extensive preparation since it was a stand-alone subject and better opportunity for discussion and reflection. The co-teaching model also provided an opportunity for sharing methodologies and ideas with a more experienced teacher. (Final interview)

Though the teaching of science was the initial attraction for Ned, in the end he highlighted the shared delivery, opportunity to discuss and reflect and share

methodologies with a more experienced teacher as significant during the project. Ned had clear expectations to become a better teacher of science. However at this point while he articulates a general learning from the experience, he doesn't specifically reference learning from his co-teacher.

5.2.2.2 Naoise's motivation

Science teaching:

Naoise's motivation stems particularly from the focus on science and how she considers the pupils will benefit:

it's a lot to do with the science in particular. I mightn't be as motivated as I should be to teach it (laughs) I think the kids will get a lot out of it and it will be very practical I think and I hope I will have a bank of lessons I will be able to teach every year.

Of note here is Naoise's perception of her confidence in science. The revised curriculum was introduced in Ireland in 1999 and gave prominence to science in primary schools. The science education component of her qualification would have been minimal. Co-teaching was an opportunity to address her lack of confidence in science teaching.

An alternative experience:

Naoise was also motivated by co-teaching as it offered a different teacher role. Working with a student and having the opportunity to learn from the student rather than being observed by a student and facilitating a student motivated her.

I like the fact that you are teaching with somebody else, getting ideas from somebody else.

Naoise articulates two key motivations – one to become more comfortable teaching science and secondly the opportunity to work with a student and the opportunity to learn from him/her and to offer ideas to them.

Understanding of co-teaching:

Naoise articulated a comprehensive understanding of co-teaching and addressed the essential element of planning together and teaching together:

I suppose two of us teaching. One of us teaches one half of the lesson and the other teaches the other half of the lesson, planning together, getting ideas, two heads are better than one I suppose.

The collaborative and reciprocal nature of co-teaching are captured in her response. The reciprocal element also featured when Naoise spoke about the conditions necessary for success in co-teaching:

that both have ideas, that they are there to help each other.. that nobody is dominating, that it is an equal partnership.

Naoise articulated two concerns about co-teaching, time for planning and how they would find time for this without impinging on teaching time for other subjects. Her other concern was how she would relate with her co-teacher and whether or not he/she would be as committed as she is:

you also want to get on with the student you're teaching with and that they are willing to work as much as you are and that their concern is the teaching of the children as much as it is for you.

Just as her understanding of co-teaching centred on planning and teaching together, her measure of its success centred on both those also. The importance of a common understanding of co-teaching and that both were equals were emphasised. Considering that Naoise's experience to date with student teachers has been on the regular placements during which she had no formal role, this is both a sophisticated understanding of co-teaching and a considerable 'leap of faith' for a teacher not accustomed to regarding the student as an equal.

Whether the children learned or not and if they enjoyed it and was it successful for me or was it not and that both of us learned new ideas that the other teacher learns from me

Naoise identifies the importance of both co-teachers benefitting. She recognises that both can be teachers and both can be learners. This perspective influenced how Naoise engaged with her co-teacher and from the beginning marked their relationship as different from that usually sustained by the teacher and student.

5.2.3 Theme 3: Reflecting on the co-teaching experience:

5.2.3.1 Ned's co-teaching experience

Learning from co-teaching:

Ned identified the opportunity to tap into the class teacher's familiarity with the class as a key advantage and an aspect of teaching he didn't experience previously:

I found it very beneficial, in that I had someone who knew the class, who had structures in place within the class and who was willing to help me during the lessons. Not having that before it took a while to get used to it, working with somebody, but as the co-teaching process went on, you find that your own comfort level with the class was increasing, but your comfort level with the co-teaching partner was also increasing and the co-teaching experience.. all these comforts culminated to make the experience.. we were able to bounce better off each other, the lessons were becoming more fluid.

Here Ned identifies the importance of the trusting relationship between the co-teachers. It is in comparison to his solo teaching of science that Ned identifies the advantages of co-teaching science – in particular the pedagogical benefits. As similar issues arose on both experiences, Ned was able to compare both teaching

experiences, in particular to compare how he dealt with issues and how he saw Naoise dealing with similar issues. He gives this example of questioning:

When the children ask Naoise questions, I see how she subtly but conscientiously deals with it whereas I wouldn't say I'd be humming and hawing but it would take me longer to think on my feet on the five weeks, where there was no back up. It's just having been out there for 5 weeks, I can think of issues that if I had to face again or if I had even 10 mins notice I would have handled differently, you go out into somebody's class again you see like it's second nature to them and similar enough issues.

Even though his structured placement was for five weeks, he didn't have the opportunity to observe and learn any of these issues with his placement teacher. Ned is clearly learning from his co-teacher, and is able to contextualise this learning by reference to his previous placement experience. He draws attention to the difference between his learning on the scheduled observation days and his learning with Naoise:

It's been beneficial in that I see a class that are used to a class teacher and how she is maximising her relationship with the children to get science out...how a teacher subtly reprimands instead of going out and really chastising a child...when I am sitting down and walking around I get to see what Naoise might call mundane things, everyday interactions, to see how to maximise these interactions for science teaching.

Even when he is active in the lesson himself he says he can 'see' Naoise teaching. This opportunity to see another teacher didn't feature on his regular placements. In his second interview, Ned gives an example of this *learning from* Naoise:

There are 23 in the class, which isn't massive but I'm still learning to do the practical things, settling groups and organising roles within each group then. My co-teacher has that pretty much down to a fine art because she is using it so frequently, it is a good model to learn from. I consider myself fairly weak at

group work...by the end of it I was coming in to all these little nuances in the class, being able to read them because of the co-teaching.. if I was in there teaching science on my own I wouldn't be able to consider all these things because I'd have no model to work from, and somebody else's work to think about.

Ned moves from specific issues – classroom management and groupwork – to being able to 'read' the classroom. Naoise's work was '*a model to work from*' and '*somebody else's work to think about*'. Ned identifies reflective space within co-teaching which is different to the space he would have when teaching on his own. Ned identifies organisational aspects of teaching and then relates those to pedagogical issues. He linked strategies for arranging groupwork with quality pupil-pupil interaction and their oral language proficiency. Being able to read the class indicated that co-teaching offers a final year student teacher an accelerated learning opportunity, he already has the skill and experience to interpret and analyse the co-teacher's work. This is practical learning enriched by his previous experience. He spoke about observing an approach (to groupwork) and then trying to implement it himself:

On the first two lessons I saw (the groupwork strategy) and on the next lesson I put it into practice what I saw, she has a way of setting up the groupwork which is good and works well for me later in the lesson; it is easy and worthwhile to pick it up

It wasn't just the organisation of groups that impressed Ned but the quality of the pupils' engagement within the groups.

At the activity stage you see the children bouncing their own ideas off each other, it is interesting to see how they rationalise their own criteria for including something, or trying the next stage or trying another idea. The most rewarding part of the process was noting the children's ability to justify their thinking. Even if their thinking was not scientifically accurate, the use of

language, deeper thought level and confidence to propose their observations improved. Ned Vignette Week 2

Ned was impressed with the outcome of the pupils' groupwork, how focussed and purposeful it was. The key practices of listening, responding and seeking clarifications were identified:

...especially in groups where there is a leader they ensure that children really do challenge and that their own contribution is listened to. They will ask a question to clarify what a person was saying, which is interesting in its own right, but they'll also ensure that their own idea or concept of what is going on is listened to as well

Adhering to the five part lesson format was initially a challenge for Ned and Naoise and it resulted in a segmented delivery of lessons. However by the third lesson

We worked on it and definitely by the third time I was out there we had it mediated enough that there was a nice flow to the lesson.

While it was important for them to address this issue, the benefit of addressing it was that their lesson presentation improved but addressing it was a collaborative effort and one which developed shared responsibility and trust. Having addressed that, Ned identified a more significant pedagogic challenge and one which was significant for him as the keen science teacher:

I hate to say that we have been negligent of process skills but I suppose by not drawing enough reference to them we really were being negligent of them and focussing in on conceptual science, but now we are going to go all out to get process skills and knowledge, working in tandem. We will plan for specific skills, linking them from one lesson to another.

Similar to Karen, Ned has the opportunity on co-teaching to observe a teacher and to compare strategies and approaches. However, unlike Karen, Ned is very positive about the teaching skills he observes.

5.3.2.2 Naoise's co-teaching experience

Co-teaching with a student teacher was less threatening for Naoise than co-teaching with a colleague. She considered that her relationship with a student as co-teacher was less judgemental:

Well I can see the benefit of doing it with a student because you didn't feel like you were being observed. You didn't feel like someone was thinking- oh they are a terrible teacher, you know that way. I think if you did it with another co-teacher in the school, you would be far more conscious of it. I did have a teacher in my classroom before and we were doing something similar and I felt very conscious of it. It's hard to incorporate it. I know it's easier to do it with the students.

Naoise accepts that there is a degree of observation involved in co-teaching but is more at ease being observed by a student teacher rather than by colleagues. However as Karen illustrated the student teacher is also judgemental and not always positively so. As we have seen, Ned was complimentary about all aspects of Naoise's teaching.

Science learning:

Naoise was pleased to have been involved in the project and in particular she felt she improved as a teacher of science,

I thought it was easier than what I had expected. The science teaching was the element I was dreading, you don't need to be an expert to do it.

Her lack of content knowledge had an impact on her confidence and this in turn affected her willingness to teach science and she conceded that she *would have always shied away from the hands on/experiment side of it before*. Now however with a co-teacher and a format to follow she experienced science differently and considered the *five part lesson* approach particularly useful – not only as an approach for herself but she endorsed it from the pupils' view also:

I loved the five part lesson. I thought it was great. In the second section where they explore themselves, I thought that was brilliant.

Co-ordinating their collaboration in the five part lesson was a difficulty and Naoise echoed Ned's comments about co-ordinating the sharing of the lesson.

The overlap was difficult alright, going from step to step. When we were stopping to change over, it wasn't very smooth. With two of us, going from person to person, that was the big thing. I don't think we even figured it out at the end.

While they each had discreet parts of the lesson, they agreed that both would be involved in the experiment section:

The part that we both agreed on that we both would do was when the kids were doing either their exploration or when they were actually doing their experiment. You know, you need both people to walk around. I suppose I would be well used to doing that anyway but Ned wouldn't have been as used to doing that. I think that was something he was learning as we went along.

Here Naoise is identifying the learning of the coteacher, presumably referring to the interaction with pupils during their experimentation.

Overall as a methodology, Naoise found it was something worthwhile though at times, the transition between the parts was rather difficult and broke the momentum of the lesson.

As a professional development experience Naoise found the co-teaching worthwhile and compared it favourably to other professional development courses. For Naoise learning how *to approach the science lesson in a practical way* was a definite gain from the process. While Naoise doesn't make the point explicitly, her implication is that co-teaching is an effective form of professional development:

With a lot of subjects they tell you that you have to be practical but they don't show you how to do it. I really learned how to do it.

Naoise was involved in a school where the sharing and seeking of ideas was part of the culture. Engaging in pedagogically focussed talk with Ned was part extending this culture to him, though it seems to be an informal professionalism which Naoise describes and it resonates with Karen's description of the staffroom discussions she witnessed in her placement school.

5.3 Case study 3: Donagh and Meg

In this case study the student teacher is being referred to as Meg and the class teacher is Donagh.

5.3.1 Theme 1: Relationships on placement and co-teaching

5.3.1.1 Meg's placement experience

Meg saw her teacher as a guide but also as someone who didn't relinquish control over the class when she said *'they know you're in charge but they are kind of in charge as well'*. The teacher was *'keeping an eye on the class'* and Meg found this reassuring. Others may have felt undermined or nervous about this teacher presence but this was not the case for Meg.

Meg developed a good relationship with her class teacher with whom she spoke on a daily basis and considered that of all her host teachers, this placement teacher became more involved with her. While there was general chat about classroom management there was no specific feedback related to subjects. Meg's teacher gave a range of advice to her, ranging from background information on the pupils, advice on how to create displays. Meg would ask questions but the teacher also volunteered advice. Meg found what she said was *'helpful and encouraging, I wasn't put out by it at all, it was good advice on classroom*

management . The teacher's feedback was important to Meg, she felt motivated by it and in her first interview remarked:

If you didn't get that feedback during teaching practice you kind of mightn't want to do much more' (Interview 1)

It would appear that Meg was content to have limited autonomy in the class, never quite shaking off the identity as a student teacher. The teacher presence reassured her, whereas others like Karen really enjoyed the freedom bestowed by her teacher's absence.

5.3.1.2 Donagh's relationship with placement students

Experience with students on placement

In keeping with the culture of the school, Donagh regularly takes students in his class. He identifies two concerns when taking students. Firstly it is the concern regarding of the students' competence and how well they will be able to cope with the class. This was not always an issue for the students but is often a concern due to the dynamic of the different classes he taught. He says '*other classes if I gave them away for five weeks it could be hellish going back to them* '. (Interview 1)

Donagh refers to *giving away his class* and this is indicative of his perception of his role during the placement, i.e. the class are gone from him.

His second concern relates to the lack of clarity of his role. Because he does not wish to undermine the students he doesn't interfere in the lessons and tends to monitor the pupils' attentiveness as a result his relationship with them changes:

You're not teaching for the two or three weeks or whatever, you're giving out to them dealing with all the problems instead of seeing the benefits of teaching them. (Interview 1)

He suggests that guidelines for class teachers would be helpful and teachers would understand that they have a mentoring role. Despite the lack of guidance for his

role as a co-operating teacher, he does engage with the students and is motivated to help them reach their potential:

Sometimes you see a student teacher and they are struggling and you know they have potential, more than what they are getting out of it , now that mightn't work with everyone , but you know the way ..if I can help them get to their potential in any way , whether it be a C grade or an A grade just to help them along the way it's a tough enough time without having no advice ..so that would be the main motivation.

With regard to his placement student, Donagh, was pleased that she was a capable and committed worker. He was reassured that:

This student was a worker and I knew she was approachable if there was any hassle, if I had any worries I could approach her. (Interview 1).

Once Donagh evaluated her in-class competence he would decide on the extent to which he needed to be present in the class:

The worst thing you could do is sit down and watch them all day. I would be in and out all day just to keep an eye for the five week TP they want to feel as if it's their class so the first week I spent a lot of time there to make sure she was getting on fine, every day I'd go to her first thing in the morning , stay for an hour ask her if there was any lesson she'd like me to sit in on , she'd say whether she wanted Maths or whatever...then I'd be around the school, working with other kids or whatever.

Donagh recognises the difference between Year 1 and Year 3 students and recognises the desire for final year students to have a sense of autonomy in the class on their final placement. Donagh was able to balance this autonomy and still be responsive to any particular assistance the student sought – as was the case with this placement student and her Maths lessons.

5.3.1.3 Donagh's relationship with his co-teacher, Meg

Donagh described co-teaching as '*two teachers working together and teach a lesson or a group of lessons*'. Donagh identified three aspects as essential to the success of co-teaching- the relationship between the coteachers, the student coteacher readiness to '*pull their weight*' and a clear delineation of roles which he saw as

vital because then there's less pressure on the person coming into the class and it has to be made clear to the class that this person is coming in as a teacher'. (Interview 1)

Donagh identified the clarity in roles as a means of ensuring that the student co-teacher felt empowered as a co-teacher and that she wouldn't be overshadowed by the class teacher. Rather than set boundaries to the roles, he saw the clarity as outlining the learning possibilities for both co-teachers. Donagh stressed the importance of the student's contribution and seeing herself as an equal. Furthermore he says that to give the co-teacher due respect:

It has to be made clear to the class that this person coming in is a teacher, it is vital they know she is a teacher. (Interview 1)

In comparison to the relationship that developed between the other partnerships, Donagh and Meg seemed to have a less equal relationship. Donagh thought that the '*rapport wasn't there between us*'.

Donagh felt that he had to lead the process, remarking that he would have to do most of the work in planning the sessions even when they planned collaboratively. For example he notes:

One week I tried to get her to think how could we introduce that lesson but I ended up coming up with it myself again. Meg did ask questions of me at certain stages but she could have asked a lot more when she didn't have the pressure on her. Donagh interview 2

Donagh stresses that he sees the student as his coteacher and while recognising that at times '*students can be shy*' he expects feedback from them;

I would expect feedback if they think a methodology would work or if they notice a way of working with weaker kids in the class. (Interview 1)

While Donagh recognises that students may be shy and that they have relative little experience, in the context of a co-teaching project, he expects a level of confidence and a contribution to make the co-teaching worthwhile for both co-teachers.

He identified a lack of confidence in Meg and in his evaluation of their first lesson commenting on his relationship with Meg, he wrote:

I got on fine with Meg but she is extremely quiet and shy. Needs to speak up a bit and tell me if I am taking over more of the lesson than I should be. (Lesson 1 evaluation)

Donagh recounts an incident which for him summed up Meg's characteristic reticence. While Donagh was photocopying materials for one of the lessons, Meg was in the class but on his return he found that she wasn't mingling with them and thought '*they weren't all over the place they weren't ready to start. If the roles were reversed I'd have them ready to start. Maybe it was a confidence issue with her*'.

Despite making an effort to involve and empower Meg and stated he wanted to have '*fifty fifty responsibility*', she was unable to contribute as an equal:

The half and half relationship has to be there for the success of it. Like I would say Meg is extremely studious and very good at that part of the writing or learning, but not the teaching part.

Donagh is disappointed that in his eyes his co-teacher is unable to shoulder the responsibility that would make her an equal in the lessons and that would open the possibility of him learning from the lessons. Despite the emphasis on both co-

teachers contributing to lessons and the concept of both as teachers, in this partnership one co-teacher felt a disproportionate burden. Though Meg articulated an understanding of co-teaching, she did not illustrate a readiness to participate as an equal.

5.3.2 Theme 2: Motivation for participation in co-teaching

Meg's interest in science motivated her involvement. She saw co-teaching she saw as a new experience and it would give her a '*new perspective and find out ideas and strategies that the teachers have already*' (Interview 1). Meg studied Biology and Chemistry to Leaving Certificate and was confident in her subject knowledge. Working with and learning from a class teacher motivated her.

5.3.2.1 Donagh's Motivation

In terms of learning, Donagh identified the pupils' learning as a priority but also hoped the co-teacher would learn also. For his own learning he hoped that the co-teacher would bring ideas regarding classroom management and approaches to groupwork . He says that even though he is only out of the college six years he is hoping to learn from the student.

You also want the class to get the most out of the teacher, if you are motivating the teacher to work a bit harder , to try their best the class will get more out of it and that's a different teaching personality, different lessons .. you're learning yourself as well as you're going along ..they might have bits of advice for you , the student , you can learn a lot from students as well ..different methodologies and stuff like that

5.3.3. Theme 3: Reflecting on the co-teaching experience

5.3.3.1 Meg's experience

Learning from the co-teacher

In her second interview, conducted after her third co-teaching session, Meg identified Donagh's dialogic approach as an aspect of practice that impressed her. She linked his approach with his teaching style:

The way he asks questions, how he involves children in discussion, it's not all one-sided teacher talk, he is enthusiastic, the children respond to him well, they get on well with him (Interview 2)

Meg alludes to his pedagogic content knowledge when she describes his explanations – *simple but effective explanations, putting it in terms that the children understand.*

Co-teaching gave her the opportunity to be both teacher and learner, *learning while I am teaching* is how she put it. She referred to the opportunity co-teaching gave her to observe *the teacher's strategies and classroom management* and contrasted this opportunity to the usual TP where you are *just expected to know it.*

In her final interview Meg described the process as very beneficial and met her expectations. She identified working with an experienced teacher, teaching aspects of the science curriculum she hadn't previously taught and receiving '*on the spot*' advice from her co-teacher as three beneficial aspects.

Meg described working with the class teacher as less stressful than TP because '*the responsibility for the lesson wasn't just on you, it was with both people*'.

Contribution to co-teacher

Meg expressed the hope that her enthusiasm for science would benefit her co-teacher and she hoped that she could bring new strategies to the teacher. However in her final interview she struggled to say how she contributed to her co-teacher's learning, mentioning that it was '*helpful that I was there organising and to give out stuff*'. In terms of pedagogy she said she used different strategies to maintain the children's interest and used '*colourful pictures on the board, he said they were helpful*'. (Interview 3)

Learning from the process:

All of the student participants wrote detailed evaluations after each lesson, as described in chapter 3. For her final three lessons, Meg used the vignette format and through both formats, structured lesson evaluations and vignettes, gave detailed insight into her learning from the co-teaching which is not evident in her interviews.

The first half of the vignette is a detailed descriptive narrative of the lesson and the second half is an analysis of the learning from the lesson. The following is an extract from the analysis section of her fifth lesson, a lesson on temperature and dissolving.

I felt that when I asked the children to think of things that do not dissolve, that it was useful to link things and ideas to the children's lives and what they are used to. I have experienced this throughout the co-teaching sessions. I believe that it makes it easier for children to think and to grasp the concept that you want them to understand and to learn, but also, provides a basis and a starting point for the teacher's teaching so that everybody in the class can be on a level par as much as possible, including those of all ability levels.

Furthermore, I felt that Donagh's use of the toilet paper analogy was excellent because it was simple while at the same time very effective at depicting the message to be conveyed and it put the notion of paper not dissolving into context very well for the children. A story always gets the children interested but also, helps them to learn and to put things into context and perspective for them. I would not have thought of explaining paper not dissolving that way so it was helpful to know for future references how to go about explaining the term dissolving or any other term for that matter. I should, therefore, try and use analogies like these in my teaching as I have seen that they are very effective, due to having observed Donagh using them during the co-teaching sessions.

Usually the question or focus for the investigation would be decided or instigated by the teacher, but, today however, the children came up with the focus by themselves. This showed that the child were active agents in their learning as they decided how to test the ability of substances to dissolve, even though Donagh and I had planned to carry out the investigation in a similar manner. It helped to encourage the children to understand that their opinions are valid and that they contribute to the lesson. Also, it allows some of the children, if not all of the children, to think more scientifically about how things come about and how to investigate theories and predictions.

Meg's observation and reflective skills are more evident through her vignette than interview. She notes children's grasping of concepts, questioning and focusing on the topic, use of peer learning and structure. She has the capacity to analyse teaching situations though may be not be able to enact the lessons from such analysis. She struggled to share these insights with her co-teacher and seemed content to use the project as an opportunity for her learning rather than contribute to her co-teacher's learning.

Meg liked the five part lesson approach, and in particular the promotion of children's discussion prior to the investigation. Like others Meg alluded to the difficulty with transitions in the five part lesson, describing the parts as *disjointed*. Interestingly she referenced the power dynamic as an issue, saying:

It's sometimes a bit hard to be assertive in the teacher's class, you don't want to be too assertive (Interview2)

5.3.3.2 Donagh's experience:

In terms of benefitting from the process himself, Donagh felt that he would have learned more if he received feedback from Meg. From the outset he was concerned that he was '*looking after Meg as well as my class*' (lesson review 1). Though he stressed the sharing of responsibility with the co-teacher, he felt that Meg was disproportionately dependent on him. Donagh's understanding of co-

teaching put him as an equal with his co-teacher and Meg's inability to see herself as Donagh's equal was problematic. Donagh had extensive experience of dealing with students on the usual placements and regularly mentored them. In that context he was the leader and more experienced person and there to assist the students.

Despite this disappointment, Donagh regarded the co-teaching as a success because the pupils learned from each lesson and enjoyed each lesson. He did add though that it would work better :

If the rapport is built up or if both teachers have a confidence about them and work hard at it. The half and half relationship has to be there for the success of it. The kids definitely learned from it, Meg learned but I could have learned more from it probably. That might have happened with a different teacher who could have given more feedback. (Donagh interview 2).

With the Five Part lesson, it was essential to plan who would take each stage and who would gather materials for the lessons. It was difficult to get involved in the other teachers sections and Donagh found this frustrating. While observing Meg's stages he remarked that:

I was coming up with questions that I could ask so when taking over the next part of the lesson, you tend to ask the questions you thought of so it's a good review of what the other teacher has done, like you don't want to interrupt the other teacher either. (Interview 1)

Donagh was very pleased that the pupils benefitted from the experience saying that they enjoyed the experiments in particular. They looked forward keenly to the sessions.

Donagh is far more circumspect when commenting on his learning and Meg's learning. He considered that Meg learned but considers that:

She could have learned a lot more class management wise even if she took the opportunities that were available. She did ask questions of me at certain

stages but she could have asked a lot more when she didn't have the pressure on her. (Interview 2)

Donagh considered the co-teaching beneficial for the pupils, involving them in more science lessons and in a new way. However he thought Meg didn't exploit the learning opportunities and while he felt he contributed to the process, he didn't learn from it as much as he expected. He identified the perspective and the personality of the co-teacher as being a key factor, and Meg he considered was retiring and reticent about her learning needs.

5.4 Case study 4: Maura and Hilda

In this case study the student teacher is being referred to as Maura and the class teacher is Hilda.

5.4.1 Theme 1: Relationships on placement and co-teaching

5.4.1.1 Maura's placement experience

This theme highlights Maura's engagement with the class teacher and level of intervention by the class teacher.

Support from the class teacher:

Maura taught an infant class for her placement and was made feel welcome in the school, in particular by the teachers of other classes. The teacher who taught Maura's class the previous year was generous in her time talking with Maura about the pupils. The staffroom discussion focussed on how individual pupils were progressing rather than general methodologies which had been observed in other case studies also.

Maura describes how in the course of her four placements, engagement with teachers ranged from the teacher's absence from the class during her teaching (in first year) to being very supportive (infant placement in second year). The infant placement teacher gave Maura and her partner advice and also observed them teaching. Maura recalls the advice she offered regarding one pupil who got a lot of her attention:

There was this one student he tended to shout out answers or he'd raise his hand but wouldn't wait for you to call him, but he'd still shout out and she was kind of saying you know when he calls out 'me me me' your attention is drawn to them...she said you focus too much attention on him, so that helped. I didn't notice it myself and once she said it you could really notice the difference by spreading the questions around. (Interview 1)

This insider knowledge was appreciated by Maura but it occurred by chance rather than structure. Another teacher used the time Maura was in the class to monitor a child who was in need of a psychological assessment and to organise an appropriate test. This varied experience illustrates that there is no coherent structure on the teachers' role and the level of the teacher's involvement is determined by himself or herself.

Maura always sought opportunities to engage with her class teacher but was conscious of taking up too much of her time. She asked about a particular lesson each day but refrained from asking more often – *I wouldn't keep probing her (Maura Interview 3)*. The teacher was helpful in responding to Maura's questions and also offered unsolicited compliments about her teaching. Maura thought that her placement was the first occasion for her teacher to be a co-operating teacher. Maura considered that had she (the teacher) received guidance from the college she would have been more proactive and described the teacher's role currently as being '*neither here nor there at the moment*' (Interview 1).

Interestingly when asked what input she would like from a teacher if they had a more defined role, Maura described a teacher-adviser very much like what she had actually experienced:

Not every day but at the end of the week sit down and say well this went well because or this isn't working for you on this subject and you need to try it this way. Maybe not tell you but to suggest it. Not as a supervisor , more of a general advisor really. (Interview 1)

Maura recounts her experience of teaching English reading to her class of Senior Infants as an occasion during which formal guidance from the teacher would have benefitted her. Hilda's example of this intervention to assist her student with the teaching of English contrasts with Maura's experience at that time teaching the same class level:

My class were fairly good but English was the hardest, you know Senior infants, starting to read. She (the teacher) was trying a new approach herself but left it very open to myself – do what you think there, you can try whatever approach you want . That could have been more laid out, especially for the pupils who had difficulty reading, she didn't say it to me , I figured it out myself. (Maura Interview 3)

Maura cited this as an example of how her teacher could have been of assistance to her. As the teacher encouraged her to try her own approach, intentionally or otherwise, this left Maura with the impression that she was on her own in figuring out her approach to reading.

5.4.1.2 Maura's relationship with her co-teacher, Hilda

The presence of a second teacher gave Maura reassurance. While acknowledging that the context was different, Maura:

felt very at ease when teaching and not under pressure as I have done on previous occasions. I realise that the setting is quite different from teaching practice but I think it was the fact that I had another teacher in the classroom

working on teaching the same lesson as myself that made me feel this way. Having two pairs of hands and eyes in the classroom is a real difference and also gives the pupils a lot more teacher time. I also picked up some small strategies from Hilda for dealing with difficult pupils and also for motivating pupils to work when it is clear that they have little interest in the subject matter.

While Maura had the opportunity to work with a peer as partner on placements, and did liaise with class teachers when planning topics, this opportunity to work in partnership was different. On previous placements Maura spoke with co-operating teachers so that she could teach the pupils on her own, now she spoke with Hilda so that she could teach with her. Maura compared both experiences:

Before you'd have three days observation and fill out the forms and the teacher would ask you to do this in Maths or whatever and leave the others up to yourself. Whereas with this you are totally interacting, we are doing it together, planning together, even down to the questions you ask, much more interaction with the teacher, that's the biggest difference. (Interview 2).

Maura recognised that Hilda had knowledge and insight into the class that made her engagements with them more effective. She was asked if she had developed a similar insight into her class by the end of her five week placement and she replied that she was '*Getting there but not quite at the same time, just building on it.*' For Maura, working with a co-teacher accelerated her learning.

5.4.1.3 Hilda's relationships with her placement students

Hilda describes herself as being *pretty apprehensive* at the prospect of having a student for the five week placement. She taught one of two 1st classes in her school and her partner teacher was undertaking her Diploma (probationary period) at the time so they had their work for the term planned in detail. Hilda was concerned that having spent two months settling her pupils into a routine, she described them as a '*quite a tough class*', that the arrival of the student, and the

understandable adjustment, would be a setback for the class. Hilda's anxiety was heightened by the character of this particular class, and by the fact that she was the more experienced teacher leading her colleague through the probationary period.

However she said that *'as time went on these anxieties totally went away, totally went away'*. (Hilda Interview 1).

In recalling her own placement experience, Hilda describes how her class teachers were *'barely in the classroom'* (Interview 1). The recollection of how she benefitted from one host who offered guidance and support and being a relatively recent graduate in a particular school/class context (described above) may have been the factors which motivated her to assume an active support role with her student.

As a recent graduate Hilda was keen to assist with her five week placement student. Her practice was to engage the student in discussion each day, reviewing the lessons and looking ahead to the next day. She also described how she recognised her student's difficulty with teaching English and how she modelled it for her with the result that *she took off from there*. This contrasts to Maura's experience teaching English reading to her Senior Infant class on placement and receiving no guidance from her class teacher.

Hilda's concern to maintain the momentum and work ethic she had established with her class was probably a factor in her intervention but it underlines that the level of support offered to students is locally determined and determined by circumstance rather than an understood obligation by host teachers. Similar to the other cases, Hilda and her student forged this working relationship themselves – there were no College guidelines to chart a course for their co-operation. Hilda was fully prepared to assist the student in any way and her perspective as a co-operating teacher and her and the student's personality made this possible:

We got on great we had a great relationship, very amicable. I'd put it down to our personalities, we just got on well. It wasn't like I'm the teacher and you're the student; I'd help out with groupwork, with science, with SESE, subjects like that that had potential to be messy. (Hilda Interview 1)

5.4.2 Theme 2: Motivation for participation in co-teaching

Maura's openness to new ideas, the opportunity to teach more science lessons and collaborating with a teacher made this project attractive to Maura:

I am really open to new ideas so when I heard about this opportunity my first reaction was that it would be something very different and also the fact that it involved teaching science was good. I loved teaching science while on all of my teaching practices as the pupils always loved getting actively involved in all of the experiments and were very excited about seeing any changes. I was also looking forward to working collaboratively with another teacher as this is very different to what we have experienced during college. (Final essay)

Co-teaching science and closely collaborating with a class teacher attracted Maura to the project. Maura considered that her confidence and expertise in science teaching had improved throughout the programme. Classroom management and organising demanding activity based lessons daunted Maura initially:

In 1st year I'd be afraid to try out anything that would involve an awful lot of organisation. I don't think I'd have been able to handle it. I'd be afraid that it would go totally wrong - especially younger classes with water and beakers - you'd really have to have the proper classroom management. So I was kind of afraid of doing something like that not knowing the class whereas now, working with someone knowing the class, it would be hands on and I wouldn't be afraid to try something like that. (Interview 1)

Hilda's recent experience of collaborating with her colleague in the adjacent Senior Infant class motivated her to become involved in the project.

Hilda's expectation was tempered by her status as a recent graduate, therefore someone who was exposed to much of the pedagogy that Maura was familiar with. As she put it, a more experienced teacher would have learned more from the science.

5.4.3 Theme 3: Reflecting on the co-teaching experience

Maura articulated the benefit of focussing preparation and teaching on one particular aspect of the curriculum (science). Maura was confident about her ability going into the project, but through her co-teaching reflections she realised that prior to co-teaching, the experiment dominated her science lessons. While she was happy to have an investigation as the core of the lessons, her lessons tended to rush towards that element to the neglect of other areas. The lessons with Hilda developed her awareness of the importance of elicitation and building on children's prior knowledge and not just the actual carrying out of an experiment. The co-teaching allowed her develop a focus on the skills and discussion to a much greater extent than previously:

I was reading about all the key skills. I would have been aware of them but now I try to incorporate as many of them as I can into a lesson...Before this, in a science lesson it was just get to the experiment, that was the whole thing of a science lesson, you do the experiment. Now I realise that's not the only thing, the other parts are just as important, the questions, reflecting back, planning each stage how they are going to do it. (Interview 3)

The Five Part Lesson structure was particularly helpful to Maura in focussing on these separate elements of the lessons. Herself and Hilda developed a 'good dynamic' and while they undertook key parts of the lessons, there was sufficient flexibility for each to contribute to the other's part of the lesson.

In her Week 2 Reflection, Maura listed the process skills addressed in the lesson:

Today's lesson incorporated many of the process skills including

- *Questioning- continuous throughout the lesson.*
- *Observing- looking to see which materials let light through and which materials don't.*
- *Investigating- Using a torch to see which materials allow light to pass through.*
- *Analysing- getting the pupils to classify which materials let light through and which didn't into two separate categories.*
- *Evaluating- having the experiment complete they evaluate and reflect on the results- which material would make the best blind. (Week 2 Reflection)*

The project afforded Maura an opportunity to reconceptualise her approach to science lessons and she summed up the impact the project had on her as a science teacher:

I am much more confident as a science teacher now- I am more open to trying new lessons and adopting various approaches to suit both the class and I also realise that is important to build on what the pupils say in class and am not afraid to deviate somewhat from my original plan depending on pupils responses to different questions and stimuli. I have also seen how to successfully incorporate different talk strategies into lessons and these could be used in any other subject also. (Final evaluation)

While Maura is now a more confident teacher of science and she is more responsive to the pupils' initial ideas and questions, it is not clear from the above if this confidence results from more teaching experience or if it can be attributed to her co-teaching experience.

In her second interview, Maura identified how the presence of a different teacher was beneficial for the pupils – *they never get bored from the same conversation, they are constantly going, when there might be a lull, the other (teacher) can pick it up again, they are always busy.* She considered that a new voice was good for the pupils but she highlighted the benefit of a second teacher for groupwork, as this allowed for smaller groups and more teacher attention for the pupils.

This was particularly beneficial for this particular class who, according to Maura were well able to voice ideas but not good at listening to others' ideas.

The pupils in this class are brilliant during discussion times but they do not listen to one another's ideas- which is such a pity. We will have to continue to encourage them to listen to one another or else come up with a strategy that will ensure this. (Reflection Week 2)

To foster the children's sharing and listening skills, Maura and Hilda worked systematically on strategies such as *Think Pair Share* and *Snowballing* to show the children how to listen to each other and share ideas.

This focus on learning through language and implementing talk strategies paid dividends as in her final interview Maura reflected on the children's improved performance:

I definitely saw an improvement, even for the Think Pair Share, they both talked at the same time ..'she's not listening to me' ..but by the end they were both listening to one another. They were able to say 'I'll talk first', they were able to tell me back what the other person said which was a big improvement and even in the discussion they'd be quiet while others were talking, which was good. (Interview 3).

Maura identified talk strategies as a contribution she made to Hilda's practice.

One thing that I would pick as having helped Hilda with was the different talk strategies that we used in the classroom discussions. The class were extremely talkative and had great potential for classroom discussions but it needed to be harvested more. By introducing Hilda to these strategies and getting the pupils used to them they slowly began to listen to one another. I hope that Hilda continues to build on these for the remainder of the year with the class.

Maura Final essay

Learning from her co-teacher:

Maura was unclear about what she hoped to learn from the project, but in her second interview she said she was learning a lot from Hilda. In a certain respect, acknowledging that she was learning from Hilda underlines her *assistant* role to which Hilda referred.

One aspect of Hilda's practice which she learned from was questioning, and she observed:

Small things like continuing to develop a question – where I might stop she'd keep going probing them, just to build on it. Like the smarties test (one of the investigations conducted as part of the project) one child said we could use coloured paper instead of the smarties, and I was thinking yes we could, and I would have left it at that. But Hilda continued to develop it and we had a plate with coloured paper. She kept on building and probing. Interview 2

It may have been Maura's awareness of her need to develop this aspect of practice (probing, questioning, developing children's responses) that enabled her recognise Hilda's approach. It illustrates the benefit of structured observation and final year student teachers having sufficient insight to be able to recognise and label worthwhile teacher actions. It is an example of a dimension of teaching in which Maura recognised Hilda's proficiency and was able to learn from it. Maura alluded earlier to her increased confidence in teaching science and that may have been an outcome of co-teaching but not necessarily an outcome from her engagement with Hilda. Her approach to questioning however she does attribute to learning from Hilda. Similar to the other student co-teachers, Maura is able to highlight aspects of their co-teachers' practice from which she has learned.

For Maura having a co-teaching partner was a different and more worthwhile experience:

It's just the fact that there's two of you up there, you know for classroom management, what you mightn't see, what Hilda might see, so it's much better that way, or if we're discussing something she might be able to add in

something, whereas if I was teaching with my partner I'd never butt in , on TP it would be rude, but now we can add to it or ask another question. With this you are totally interacting, we are doing it together, planning together, even down to the questions you ask, much more interaction with the teacher.

Working with a co-teacher offered Maura a partnered teaching experience which was a better learning experience than the usual partnered placements. In the above quote Maura alludes to the polite reticence which characterises the interaction between placement partners – they share a teaching space but are not formally teaching or learning from one another. By sharing the teaching space with Hilda she had a more involved relationship with her than she would with the co-operating teacher on a usual placement. Teacher telling (the student about an approach) was replaced by teacher modelling the approach and Maura both observed and participated in this modelling:

You see it being done by her, you're not just being told yea I do the traffic lights system or star system. You see how she does it , when she gives the stars. Like when we're on TP we decide ourselves well is that worthy of a star or should I be taking things away, whereas working with the co-teacher she see that child made a huge effort – I might think it's an OK effort. Hilda was able to implement her system in a way that reinforced the behaviour of the pupils. (Maura interview 2)

The opportunity to observe the teacher, as well as work with her, was beneficial for Maura. Here she refers to the opportunity to observe Hilda dealing with differentiating tasks :

so just seeing how she dealt with them and even the kind of work she set for them .. did she work at the same level as the rest of the pupils ..or did she tone it down a lot ..

Maura identified aspects of Hilda's practice, questioning, grouping, differentiating and dealing with a disruptive child, for example, which she observed and learned

from. These exemplify *learning from* but are learning opportunities present in this particular classroom because of this teacher's approach. This model of co-teaching is flexible in terms of the focus of the teacher learning – essentially it depends on the strengths of your co-teacher and the attributes of the class. For a student with a desire to develop particular aspects of practice, this model may not be effective. Though Maura has listed a range of issues which she observed, nonetheless she found it difficult to identify what she was learning from Hilda:

It is in ways , it is hard to put it in words really like, I know like ,I know I know more now than I did at the start of it but at the same time, how do I explain it ; even watching Hilda teach and do her introduction , I listen to her and the different stories, it is helpful . Maura interview 2

The tacit knowledge that Hilda uses to relate to this particular class is what Maura can see but finds it difficult to name – as Brown *et al.*, (1989) point out this is not an unusual phenomenon even for experienced teachers.

With regard to her relationship with Hilda, in comparison to that with her usual placement partners and in comparison to her host teachers this was a different relationship. '*Totally interacting*' with Hilda contrasts with '*she kind of left me to it and anything I wanted to do*' (Maura interview 2) type relationship with her placement teacher. Such focussed discussion with a teacher was a new experience for Maura and broadened the scope of her learning to include approaches to planning and preparation. Maura gives the example of preparing for a lesson on materials:

She knew straightaway to do it with two groups first, no point in splitting them into four straightaway, whereas the TP teacher was like I mightn't have done it but try it yourself and see how it goes. Interview 3

5.4.3.3 Hilda's co-teaching experience

Clearly Hilda and Maura got on well together and their classroom styles were complementary – they interacted well and as Hilda put it, *'I wasn't afraid to jump in and she wasn't afraid to jump in and add another point'*. Interview 2

She did acknowledge that the presence of a second teacher was beneficial to the pupils as groupwork was more efficient. For Hilda, the benefit to the children, being able to work in smaller groups, modelling experiments and her own enjoyment of the process and interacting with Maura compensated for the lack of direct benefit to herself in terms of her own learning:

In experiencing science, I thought the kids got loads out of it. I did get a bit out of it, but not as much as I'd hoped. It was of huge benefit to the children and to me because they got to work in smaller groups. We did the planning and the whole process of the investigation together. I really enjoyed the co-teaching experience, I enjoyed interacting with another teacher. Hilda
Interview 2

Hilda is similar to Donagh in identifying the pupils' learning as the primary beneficial outcome and one which compensated for their own lack of learning. However Hilda is very positive about Maura's contribution, unlike Donagh's assessment of Meg. Hilda's expectations were also tempered by the fact that she was a recent graduate and therefore was familiar with Maura's approaches for language learning and science lessons. Just as the student co-teachers' learning can be determined by the proficiency of their co-teacher, the learning opportunities for the class teacher can be determined by the students' strengths.

5.5 Summary

The four students had diverse experiences on placement with their host teachers, ranging from minimal communication (in Karen's case) to daily communication, in Meg's case. While two students, Karen and Maura, would have appreciated more

feedback from their teachers, and more affirmation, they enjoyed the autonomy of having the class to themselves and felt less inhibited in their teaching when not observed by either a tutor or class teacher. Students were welcomed at a whole-school level and they participated in professional dialogue in the staffroom as much as with their particular class teacher.

All class teachers were apprehensive about hosting a student on a five week placement but in all cases this apprehension dissipated once they realised how committed and competent the students were. Nonetheless all teachers spoke about uncertainty regarding their role and the extent to which they should get involved as mentors with the students. While the teachers did engage with the students, they found it difficult to articulate the professional knowledge discussed, preferring to refer to the characteristics and needs of particular pupils instead.

Involvement in a shared endeavour, in this case science lessons, fostered communication between the co-teachers and involvement in planning and evaluating lessons improved their professional relationships. This communication emphasised the shared responsibility which all recognised as a welcome difference to the formal placements where the teacher had no involvement apart for nominating topics to be taught by the student. The five part lesson structure gave students an opportunity to teach with the co-teacher as well as observe them teaching. Students welcomed this opportunity to observe the teacher, indicating that it was not a feature of the formal placements. While observing, students were capable of naming the teaching traits or skills evident in the teacher's actions. Their prior experience equipped them to interpret the teacher's actions, in an accomplished manner. As Karen's experience illustrated, not all of the observed teacher behaviour was deemed productive.

All teachers were pleased to have participated in the co-teaching and universally saw it as beneficial to their pupils. Teachers tended to evaluate the initiative in terms of pupils' benefit rather than their own learning. Nonetheless, all were pleased to participate – Donagh articulated disappointment with his limited

learning from his co-teacher (and considered that she didn't exploit the learning opportunities for herself either); Chloe and Hilda found it difficult to articulate how they benefitted and Naoise was clear that she improved her science teaching and felt that Ned made a significant contribution to that. Apart from Naoise's case, science proved to be a means to facilitate collaboration rather than point of their learning from each other. Nonetheless it did provide the focus for the co-teachers dialogue and shared planning and shared evaluation, the type of focus which was missing from the formal placement engagements.

In the next chapter, these findings are discussed further under the themes of relationships, communities of practice and teacher knowledge.

Chapter 6: Discussion of findings

This research addressed teacher learning and established co-teaching partnerships to reflect that teacher learning is socially negotiated and is contextually bound. The three themes guiding the research were partnership, teachers' knowledge and teachers' learning. This analysis chapter uses three themes – Relationships, Community of Practice and Situated Learning and thirdly, Teacher Knowledge through which the participants' experience is analysed. These are intertwined themes to the extent that the learning occurs in partnerships which sustain communities of practice and is expressed through teacher knowledge.

6.1 Theme 1: Relationships

Noddings (2002) describes education as:

'a constellation of encounters , both planned and unplanned, that promote growth through the acquisition of knowledge, skills and understanding and appreciation' (Noddings, 2002, p. 283).

Noddings' celestial analogy captures the planned and the serendipitous encounters which contribute to the learners' growth and with students' reference to learning in classrooms and staffrooms her inclusive description is an apt one. This section analyses relationships (students with placement teacher and co-teacher; teachers with placement student and co-teacher) by comparing and contrasting the students' experiences and the teachers' experiences and looks at the impact of relationships on learning.

6.1.1 Relationship 1: Students and placement teachers

The formal scheduled placements undertaken by the students and teachers did not place any emphasis on partnership. Rather the teacher's class was given over to the student for the duration of the practice. Partnership which emerged was created locally rather than advocated and supported in a formal manner. This contrasts with the collaborative dynamic intrinsic in this model of co-teaching.

A welcomed presence

The students were welcomed in their placement schools and this welcome manifested itself through sharing of resources, welcome in the staffroom and informal sharing of advice. The students spoke about feeling welcomed by the whole staff, not just their host teacher. For example, Maura taught an infant class for her placement and was made feel welcome in the school, in particular by the teachers of other classes, including the teacher who taught her class the previous year.

Formalised observation not valued

The absence of an integrated and structured observation period at the commencement of the teaching placements illustrated a failure to recognise the importance of allowing the students to become accustomed to the routines, culture and standards of the pupils in their assigned classes. The condensed nature of the programme and competing programme demands led to the exclusion of periods of observation, rather than a deliberate overlooking of the significance of observation in student teachers' learning.

The lack of communication between the college and the school results in failure of the college to alert the teachers to the significance of their role in assisting the students. Where there is an absence of guidance regarding roles, the default position for the teacher is to determine their role for themselves. Karen's teachers reciprocated the college's non-interventionist approach:

It was very clear to me that these teachers did not want me in their class observing their teaching...For each of the three days I was observing my home teaching practice class, the teacher sent me home early as she didn't see the relevance in me sitting at the back of her class observing. (Final essay)

Such teacher actions, while disappointing in terms of teacher understanding the necessity of enabling the student become familiar with the class she is about to teach, illustrate the extent to which the role of the co-operating is underdeveloped. The fact that Meg had a more positive experience with her class teacher, with whom she spoke on a daily basis and whom Meg regarded as the most helpful of all her co-operating teachers, underlines the inconsistency experienced by students.

While the pre-teaching observations did not include extensive engagements with the teacher, each student undertook four placements and were thus exposed to a variety of teachers, teaching styles and contexts. This was informative for Karen:

In every teaching practice I had a different style of teacher and I have learned different things from them. I think in 1st year I had a mature teacher who might have been set in her ways she had an older style of teaching and I don't think I learned as much from her. But then for Infant TP and Senior TP most recently I had two almost new graduates they might have been out two or three years and I think I learned a lot more from those. (Interview 1).

Outcomes of teachers' absence from the classroom

Beyond a general welcome, the students' experiences with their class teachers indicate that teachers juggle a number of conflicting obligations which influence their engagement with the students. It was common for all the teachers to busy themselves with other duties while the students were teaching. Their absence in turn had an impact on the relationship the student developed with them and had an impact on the type of feedback the teacher could offer. This led to a mixed outcome - the teacher's frequent absence limited the opportunities the teacher

had to offer the student feedback and this disappointed Karen and Maura. They expected to receive support from their teacher but didn't experience it. However, the pattern of teacher /student engagement they experienced to date was a weak one, therefore it may have been a hope rather than an expectation that their experience would be better on their final placement.

This teacher absence allowed increased in-class autonomy for the students and their disappointment in not receiving the feedback or affirmation they sought was compensated for by this autonomy.

Karen for example, though disappointed with the lack of affirming feedback from her teacher, preferred to have the class to herself. She enjoyed the freedom and responsibility this allowed her and in contrast she was more cautious in her approach when the teacher was present.

Three of the four students consciously sought the teacher's advice in the course of the placement, Ned being the exception. Ned was given occasional, though affirming, comments which he welcomed but didn't consider to be particularly insightful or extensive. It may have been that, as a student on his final placement, Ned was accustomed to co-operating teachers' partial involvement and didn't expect to receive significant feedback from his teacher.

In contrast Meg sought and received feedback, and her teacher also volunteered feedback. Meg welcomed this feedback, though it was general rather than subject specific. Remarking that the teacher was *'kind of in charge as well'* indicates that Meg was reassured by the teacher's constant presence. We can only surmise if the teacher considered it to be in the best interests of the pupils and in Meg's best interest for her to remain in the class and to engage with her regularly and offer feedback.

Similarly, because she was not involved in the research, we are not privy to the judgements of Karen's placement co-operating teacher – her lack of detailed feedback to Karen and her frequent absence from the class may have been as a

result of her judgement that Karen was a student capable of running the class independently. Whatever the teacher's reasoning, Karen's expectation regarding affirmation from the teacher was not met. She did however experience autonomy in the classroom - this however came at the price of forfeiting feedback from the teacher.

Maura's relationship with her teacher encapsulated much of the ambivalence surrounding the relationships between the co-operating teacher and student. The co-operating teacher was forthcoming when asked but Maura was reluctant to seek advice too often lest she be too demanding of the teacher. There is no leadership from the class teacher and Maura in advocating a clearer role for the teacher described the teacher's role currently as being '*neither here nor there at the moment*' (Interview 1).

Negotiating a community of practice

School placement is a socialisation experience for student teachers as they participate peripherally in communities of practice. In the case of these students it is clear that all the students were open to receiving advice or feedback from their teacher but not all received this feedback, hence they had varying participation in the school's community of practice. The students responded differently to this exclusion – Ned appeared unaffected by it; Karen was initially deflated but began to appreciate the freedom she had; Meg was reassured by the feedback from the teacher and Maura, citing the teaching of English example, felt that the teacher could have been more helpful to her. Of the four students, it is clear that only Meg received constructive and on-going feedback. The students' peers, friends, family and college tutor became the significant members in the students community of learning as the teachers adopted a less active role. The student experience illustrates that the teacher's insight is an untapped source of support for the students. However, though untapped, the means of releasing this insight may be more challenging than simply encouraging teachers to become involved or delineating a role for them.

6.1.2 The placement teacher and the students

The co-operating teacher's perspective

The four teachers voiced apprehension about hosting a student for the five week placement and this apprehension was based primarily on a concern that the learning momentum of the class would not be maintained. While all the teachers were welcoming and supportive of their respective students, they wanted the work practices they had established to be continued. The teachers' motivation to assist the students was driven by two issues – firstly a concern for the students themselves and empathy with their situation and secondly concern for the pupils' learning. All teachers shared these perspectives but to varying degrees.

Chloe's interaction with her student indicates the significance of personal experience in guiding teacher behaviour. It was her own experience as a student teacher which primarily guides her engagement with students and informs a sentimentalist view. She wished to offer the type of support she would have liked to have received herself as a student on placement. Her concern for the students however did not lessen her expectations of them and she expected a high commitment to her pupils. Naoise shared Chloe's concern about standards and had a particular concern about classroom management.

Chloe alluded to the conflicting obligations she felt – she recognised that the student may need assistance, and was willing to offer this, but also expected the students to be as effective as she was herself. As it turned out, she had to revise content addressed by the student as she felt it wasn't understood by all pupils, however, she was understanding of this situation and recognised that the student was diligent.

Naoise described her pedagogic engagements with her student in personal terms, *chatting* rather than formally discussing, *as friends* rather than professionals. It is in contrast to Karen's experience with her teaching practice class teacher who while friendly maintained a professional distance from her. Naoise's *chat* is also

similar to the professional dialogue Karen witnessed in the staffroom – professional but undertaken in an informal manner. It is noteworthy that Naoise took her cue to give advice from the student, saying

[the student] was open to this from the beginning she'd ask me what did I think of that, so because she was doing that I was able to say what I needed to say.

Again the lack of guidance from the college seemed to leave Naoise in a feedback vacuum, while willing and able to give advice to the student she felt hamstrung by uncertainty about her role.

Conflicting identities as class teacher

In assuming the role of co-operating teacher, Chloe identified a number of competing identities – monitoring the student while also watching out for her pupils; supporting the student but not adding to his/her anxiety; supporting the tutor but not undermining the student. Uncertainty regarding her role was also evident. Despite her eagerness to advise and support the students, Chloe was mindful of the criteria they must meet, the set lessons they were required to teach and conscious of this she was reluctant to become too involved. Chloe presented as a willing facilitator but erring on the cautious side of intervention due to the lack of clear guidelines from the college.

Donagh shared Chloe's and Naoise's concern about the student and the class but Donagh's concern was different in that he was concerned with how well the student will cope with his class. He acknowledged that there may be catch-up for him to do at the end of the placement but this wasn't a major concern. Donagh acknowledged that student teachers have difficulties and he set his expectations accordingly. Like the other teachers, he was pleased with the progress made by the student. To a greater extent than the others, Donagh maintained a respectful distance, checking in with the student occasionally, careful to allow her a sense of

autonomy in the class and reassured that she was receptive to his suggestions should he need to offer them.

Hilda described herself as being *pretty apprehensive* at the prospect of having a student for the five week placement, having spent two months settling her pupils into a routine, she described them as a *'quite a tough class'*. She feared that the arrival of the student, and the understandable adjustment, would be a setback for the class. However she said that *'as time went on these anxieties totally went away, totally went away'* (Hilda Interview 1).

Hilda's concern to maintain the momentum and work ethic she had established with her class was probably a factor in her intervention but it underlines that the level of support offered to students is locally determined and determined by circumstance rather than an understood obligation by host teachers. Similar to the other cases, Hilda and her student forged this working relationship themselves – there were no College guidelines to chart a course for their co-operation.

We got on great we had a great relationship, very amicable. I'd put it down to our personalities, we just got on well. It wasn't like I'm the teacher and you're the student; I'd help out with groupwork, with science, with SESE, subjects like that that had potential to be messy. (Hilda Interview 1)

It is clear that all teachers were apprehensive about hosting a student teacher. Concern about maintaining standards was central to this concern. Bartholomew and Sandholtz (2009) consider the impact which a national focus on standards and accountability has on the development of school and college partnerships designed to promote teacher and student teacher learning. The Irish primary school context is not comparable to the high-stakes testing culture prevalent in the US and in the UK, but the introduction of national standardised testing at two intervals within the primary school has impacted on the culture of schools. Apart from inhibiting risk-taking and innovative pedagogy (Williams and Ryan, 2000) an unanticipated consequence of this policy is the reluctance by teachers to disrupt their practice to host students. As teachers' work is under greater scrutiny,

teachers' natural goodwill towards hosting students is diminished. All the teachers in this research were willing to offer assistance to the students and willing to make sure they had a successful placement. Their own experience as student teachers motivated their concern to assist them but this awareness of the student's novice status didn't prevent the teachers from having expectations that their class would continue to be run as if they themselves were teaching. Although national teacher education policy espouses partnership, there is no incentive or recognition for teachers who undertake the role of co-operating teacher.

6.1.3 Co-teaching Relationships

The benefit of defined boundaries and shared purpose

One significant difference between the formal placement and the co-teaching was the clarification of role boundaries and responsibilities. In the formal placement the role of the co-operating teacher in relation to offering feedback and guidance to the student or engaging with the tutor was not defined. It was clear from the teachers' recounting of their relationships with the students that uncertainty was a factor which influenced their engagement. This resulted in a variation in practice as a comparison of Karen's experience and Meg's experience illustrates. Participation was on a goodwill basis and the relationships that developed were as much the result of the school's culture as the dynamic created by the individual's involved.

Participation in co-teaching was also on a goodwill, opt-in basis, but it established clear roles and outcome expectations. At the initial seminar held at the beginning of the process a quote from Fairbanks *et al.*, (2000) was used to introduce the concept of adjusting practices to facilitate the presence of another teacher.

'When Wynne glided into my classroom to do her student teaching, I had to learn new dance steps. I had become comfortable with my solo performances. Having a partner changed the music and the cadence of the class. 'When do I

lead and when do I follow' were the questions that I had as Wynne and I began the process of learning to dance together' (Fairbanks et al., 2000: p. 106).

This led to a discussion on expectations and roles, firstly at a whole group level and later between the co-teaching partners. Co-teaching as a teacher learning opportunity framed this discussion and it was emphasised that this was learning for both teachers, while acknowledging that one had greater experience than the other. The researcher promoted the concept of co-teaching as a learning opportunity for both co-teachers, not solely the student learning from the teacher. In Chapter 3 reference was made to the iterative nature of grounded theory, how the research focus in a grounded theory study is determined by the participants' experiences. The researcher's emphasis on both co-teachers as learners, and researching both as learners, (as opposed to researching the experience of both whatever path it took, for example exploring Karen's sense of exclusion or Donagh's disappointment with Meg's lack of initiative) are good example of why this study cannot be described as adhering to a grounded theory framework.

This clarity of purpose and roles created a legitimate space for co-teachers' interactions. *Relationships, roles and readiness* were Donagh's phrases to describe the interactions. Relationships between the co-teachers, the student co-teacher's readiness to '*pull their weight*' and a clear delineation of roles were essential.

Donagh identified the clarity in roles as a means of ensuring that the student co-teacher felt empowered as a co-teacher and that she wouldn't be overshadowed by the class teacher. Rather than limiting roles, the process of discussing roles actually led to a discussion of learning possibilities for both co-teachers. In Karen's case she was welcomed into the class by Chloe as an equal:

Chloe was adamant that I wasn't to be seen as a student teacher coming in, that I was the science teacher , she really makes me feel that I am equal...'(Interview 2).

Maura experienced a similar openness and used the phrase *'totally interacting'* to describe her interaction with Hilda which contrasts with *'she kind of left me to it and anything I wanted to do'* (Maura interview 2) type relationship with her placement teacher.

This emphasis on welcoming the (student) co-teacher as a teacher contrasted with the apprehension the teachers had when giving their class to the student for the five week placement. The sense of ownership and involvement engendered by co-teaching, replaced the apprehension and exclusion which characterised the formal placement relationships. Chloe compared the relationship she had with both students:- her co-teacher, Karen, she came to regard as a friend, a person whom she hoped to help in any way in the future, while with her five week student, she felt she made little impact on her, and made no 'investment' in her. Clearly, in this case, the collaborative nature of co-teaching, enabling a reciprocal dimension, facilitates the development of close professional ties.

Ned makes an interesting comparison in his relationship with both class teachers. His placement teacher while supportive is also mindful of her class while he interpreted Naoise's advice as more focused on him as a teacher. By the end of the co-teaching, Ned *'preferred that relationship with my co-teacher than the one I had with my class teacher on TP'* (Interview 3) indicating that Naoise offered guidance and support which he considered would be beneficial and relevant once he began teaching on graduating, while he interpreted his placement teacher's advice as being more appropriate for immediate context of his placement class and supervision prospects.

Different relationships

The nature of the relationships experienced by the students and the teachers while co-teaching was significantly different to the relationships which characterised their formal placements. Formal placements are designed to enable the student teach in the class of a facilitating teacher, they were not designed for the student to teach with the teacher, nor was learning from the teacher

considered. Students are left to intuit the culture of learning themselves which slows down their learning process. The classic dilemmas of balancing teacher requests for particular approaches which may be antithetical to college expectations, the frequently cited college (theory-driven) school (practice-orientated) dichotomy and traditional expert - novice relationship were evident on the formal placements.

The common purpose and shared understanding underpinning co-teaching contributed to establishing relationships which promoted learning. The absence of supervision also contributed to these relationships as the students and teachers were under no pressure to perform. Communication was central to these cognitive apprenticeships (Collins, Brown and Newman, 1989) which emphasise the importance of joint activity (between learners) and context in learning. Cognitive apprenticeships involve expert and novice learners engaged in performing tasks in authentic settings – in this case planning and teaching science lessons together. As the word apprenticeship suggests, a power difference, borne of knowledge and experience, exists in conventional cognitive apprenticeships of mentor teachers and novice teachers. In the case of this co-teaching process however, as it emphasised all teacher learning, this differential while important for the students' learning did not overshadow the teachers' learning. This emphasis on both co-teachers as learners was more evident in the relationship between Ned and Naoise and between Maura and Hilda in comparison to Karen and Chloe where Chloe was disappointed with the learning opportunities and in the case of Meg and Donagh where Donagh felt that Meg never shook off the 'learner' tag and showed little initiative in being a leader. Co-teaching partnerships invested in these joint activities whereas formal placements overlooked them, thereby overlooking learning potential which arise from shared planning and shared teaching. While the artefacts of engagement (the planning templates, the lesson reviews) were important in their own right, their value was how they created a mutual focus and unlock the professional learning dialogue.

The next section looks at these relationships from a situated learning perspective.

6.2 Theme 2: Community of Practice and Situated Learning

While collaboration between teachers, and all learners, is seen as an effective means of promoting learning, Putnam and Borko (2000) maintain that it is easier to identify *what* is learned collaboratively rather than *how* collaborative settings lead to learning. Roth (1998, p. 358) describes co-teaching as an opportunity to learn about teaching in an authentic but protected learning environment. The co-teaching experience is analysed as a collaborative situated learning endeavour with reference to Lave and Wenger's proposition that learning occurs in participatory collaborations and with reference to Roth's acknowledgment of the 'primacy of lived experience and the possibility of that much of practitioners' knowledge is tacit, socially and physically distributed, and irremediably situated and embodied in specific contexts' (Roth, 1998, p. 358). The value of class teachers' expertise and its contribution to student teachers' learning is increasingly recognised and as Hodkinson and Hodkinson (2005) point out, it is often a learning experience for the teachers also (see p. 32).

The question directing the analysis is *how* does participation in a learning community foster teacher learning? Rogoff (1995) offers three types of learning and the data is used to exemplify three types of collaborative learning – *learning with*, *learning from* and *silent pedagogy*. Rogoff's frames are applied to the learning activities undertaken by the co-teachers and in this way *how* learning in co-teaching occurs is linked with *what* co-teachers learn. Throughout the study, the student participants made comparisons between their formal placement experience and co-teaching and therefore reference is also made to this comparison.

6.2.1 Student learning during co-teaching

Learning from

Examples are given to illustrate that learning *from* occurs when collaborative planning, collaborative reflection and co-teaching occur. It is inevitable that with

the knowledge and experience differential between the novice and expert, that learning *from* would occur.

The emphasis on co-participation through planning, teaching and evaluation of the learning to teach process conveys greater agency for the student learner than is envisaged in Rogoff's (1995) *guided participation* which conveys *learning from* rather than *learning with*. However, where mentoring or modelling occur, Rogoff's description is appropriate. Karen's joint planning with Chloe provides an example of Rogoff's *guided participation* (1995). The example illustrates that students' agency rather than dependency is a feature of *learning from*. Karen acknowledged that the planning templates which identified lesson stages and roles to be undertaken as well as the post-lesson evaluation templates helped scaffold her learning in comparison to her placement experience where hours could be spent preparing a lesson but no *learning to teach* value may have been accruing from it because little reflection took place:

I think we need support, we are only trainee teachers and it's teaching practice, not teaching perfect, so you need to learn as you go along. I really found that the templates that you (the researcher) made up for us, Chloe and I were very focussed in the evaluations, going through the stages, what was good or bad, positive or how we'd change it...but whereas when you are on TP you do the lesson, and you could have spent an hour typing out the lesson plan, and then it's kind of forgotten about...

Karen identified working with Chloe on planning and reflection as a *learning from* experience, though as she stated in later interviews all her interaction didn't lead to learning. Despite this, Karen felt she learned more from Chloe

than any other teacher that I met on TP and I know that's because maybe I was working with her as well rather than then teacher sitting down at the back of the class. (Interview 3)

Here Karen was acknowledging the close relationship facilitated by the co-teaching format resulted in greater learning from the teacher in comparison to the formal structure. The relationship was sustained by working together which in turn enabled learning to take place. However the quality of the learning, as far as Karen was concerned, did not reach the potential that the situation offered.

Ned identified approach to questioning and groupwork as issues he has learned from Naoise:

when the children ask Naoise questions, I see how she subtly but conscientiously deals with it whereas I wouldn't say I'd be humming and hawing but it would take me longer to think on my feet on the five weeks, where there was no back up. It's just having been out there for 5 weeks, I can think of issues that if I had to face again or if I had even 10 mins notice I would have handled differently, you go out into somebody's class again you see like it's second nature to them and similar enough issues...

Meg also referred to learning about questioning from her co-teacher, Donagh:

The way he asks questions, how he involves children in discussion, it's not all one-sided teacher talk, he is enthusiastic, the children respond to him well, they get on well with him. (Interview 2)

Ned was clear that it was the opportunity to work with a teacher, rather than take over from a teacher which appeared to create the learning opportunity for him.

The key difference I suppose is that you are learning from a practitioner as opposed to taking a practitioner's class and moving on and trying your own stuff.

The learning *from* occurred mostly for the students but was not confined to them. Alluding to her weak science subject knowledge Naoise, referring to her co-teacher Ned, acknowledged:

I would have a lot to learn from him and his expertise in it. It was good because it wasn't just me being the teacher and him being the student.

These examples indicate that co-teaching gave students an opportunity to refine their 'beginning repertoire', Feiman-Nemster's description of the teaching skills of beginning teachers (2001a, p. 1018). They were not witnessing teacher enactments for the first time but could decipher teacher actions in the context of their own experience. Learning *from* the other was accelerated because the focus of the learning was related by the learner to their current competence in that aspect of teaching. As final year students with all of their formal teaching placements completed, the students were able to use their previous experience as the context in which to interpret their co-teaching learning. Their prior experience was essential in enabling them interpret teaching events and learn from their co-teacher.

While this is assisted learning for the students, there is an absence of teacher telling in the co-teacher relationship. A recognised hazard of the mentoring process is mentors' directive tendency rather than a tendency towards elicitation. It is recognised that the mentor's wealth of experience can lead to telling by the mentor and a form of imitation by the student. In this case there is little overt teacher (as mentor) telling. The teacher does not set out to mentor yet the student still learns. Maynard's research (2001) illustrated that there are several layers to the depth of students' school based learning ranging from fitting in, imitation, appropriation of teachers' discourse. In comparison to Maynard's students engaged on their first teaching placement, the students involved here had moved beyond impression management or appropriation.

Individualised learning

It is also apparent from these example of *learning from*, that the learning focus is identified through reflection - students identify learning after it occurs rather than highlighting in advance an aspect of practice on which they wish to focus. This

contrasts with mentoring approaches where specific objectives guide the process for both the mentor and the mentee. This highlights the difference between a co-teaching relationship and a mentoring relationship – co-teaching promotes teaching to learn, with an openness to for whom the learning occurs, or what will be the focus of that learning. Mentoring, while also focused on learning, is focussed on the mentee's learning and often against agreed outcomes. Hudson, for example, concludes that a mentor's involvement must be 'predetermined and sequentially organised so the mentor's objectives are specific, clear and obtainable' (2007, p. 213). By contrast, in this co-teaching, neither participant set out to purposefully mentor the other on specific aspects of pedagogy – it was in the analysis of the teaching episode (from planning stage to reflecting on the teaching) that the lessons learnt by either participant became apparent. While Hudson prefers to benchmark mentors' effectiveness against determined outcomes, Braund (2001) is more flexible. He sees the mentor teacher as one who 'will engage in a degree of reflection enabling the student teacher to understand the associated pedagogy at a deeper level and to integrate theoretical aspects with the practicalities of classroom action' (Braund, 2001, p. 190). For Braund the mentor's skill lies in the ability to nurture greater reflection within the student practitioner and in co-teaching as both experience the same lesson, when joint reflection occurs the learning is accelerated.

Learning with

In terms of situated learning, Rogoff's *participatory appropriation* aptly describes the roles and desired effects of co-teaching. As opposed to an acquisition view of knowledge, appropriation 'occurs in the process of participation, as the individual changes through involvement in the situation at hand, and this participation contributes both to the direction of the evolving event and to the individual's preparation for involvement in other similar events' (Rogoff, 1995, p. 153).

The opportunity to engage in post-lesson dialogue with their co-teacher contributed to their learning *with*. Ned identified trust and respect as key issues which were necessary to allow for productive joint reflections. He characterised the initial joint evaluations between the co-teachers as understandably tempered with politeness:

...certainly honest and certainly a reflection of what we covered in the class, I would say that some punches were held back just because, you know you don't want to annoy anybody, not even annoy them but when you don't know somebody you don't know what will upset them, or what they'll take to heart so that might be an area to improve ..

Here he was alluding to a certain reluctance to overstepping the mark. In time, as their professional relationship developed, this changed:

as the co-teaching process went on, you find that your own comfort level with the class was increasing, but your comfort level with the co-teaching partner was also increasing and the co-teaching experience.. all these comforts culminated to make the experience. We were able to bounce better off each other, the lessons were becoming more fluid. Ned Interview 3

Such focussed discussion with a teacher was a new experience for Maura and broadened the scope of her learning to include approaches to planning and preparation. Maura gave the example of preparing for a lesson on materials:

She knew straightaway to do it with two groups first, no point in splitting them into four straightaway, whereas the TP teacher was like I mightn't have done it but try it yourself and see how it goes. Interview 3

Because she was working with the teacher, Maura avoided pitfalls associated with poor group composition, for example, and with the teacher's knowledge guiding

the creation of groups, the time was devoted to teaching rather than reorganising groups. And time spent teaching was potential learning time for Maura.

Silent pedagogy

Roth and Tobin describe as 'silent pedagogy' (2001, p. 758) the learning of how to interpret and react in particular circumstances, which they describe as the dispositions or patterned responses which emerge 'from the contingencies and temporal constraints of each situation' (2001, p. 750). In creating situation specific or contextually bound learning, co-teaching offers student teachers a pedagogy of learning which embodies the opportunity of *being-with* and *being-in* a learning situation with an experienced teacher. Ned describes learning about Naoise's classroom management:

I'm still learning to do the practical things, settling groups and organising roles within each group then. My co-teacher has that pretty much down to a fine art because she is using it so frequently, it is a good model to learn from. I consider myself fairly weak at group work...by the end of it I was coming in to all these little nuances in the class, being able to read them because of the co-teaching.. if I was in there teaching science on my own I wouldn't be able to consider all these things because I'd have no model to work from, and somebody else's work to think about.

Ned's reference to the teacher's actions as a '*fine art*' and his own recognition of '*little nuances in the class*' exemplify the unspoken tacit knowledge of teachers, acting intuitively due to their cognition. Illustrating that it is more readily seen in action rather than described, Ned saw the outcome of the co-teacher's decision making more easily than the co-teacher could articulate the reasoning behind the decisions.

Ahm.. I think I am learning , not just to do with science , even basic general teaching things, how she organises the classroom and , talking to the children,

small things like that, you know it's nice to see a teacher teaching rather than normally I would teach myself and my teacher and I are teaching we are learning from each other, it might not necessarily be the right thing we are learning, whereas now I am teaching with the teacher, who is teaching ten years or whatever..I am not saying that her way works either , but at least I am watching her. Ned Interview 2

All three ways of learning (*learning with, learning from and learning silently*) lead to changes in cognition (knowing how) and behaviour (learning to).

6.2.2 Challenges to the community of practice model

Ned's description of learning the *silent pedagogy* his co-teacher's classroom management confirms Edwards' (2005) claims about 'planned' learning but nonetheless his examples do illustrate learning for him. In the field of teaching it is difficult to establish what 'new' knowledge is. Mindful of each student's learning about teaching prior to entering a formal teacher education programme, the Teaching Council highlighted the need for initial teacher education providers to be:

'mindful of , and challenge as appropriate, the attitudes and beliefs about teaching and learning which student teachers carry with them and which inform and guide their professional practice' (Teaching Council, 2011, p.11).

Experiences may help students and teachers refine their approaches and methodologies and reflection may lead to changes in dispositions but as teacher knowledge is comprised of so many aspects, it is difficult to differentiate between 'new' and 'development' in the context of theoretical insight or propositional knowledge. Of greater significance is Edwards reference to 'socialization into existing beliefs, values and practices' (Edwards, 2005, p. 57). In her critique of community of practice highlighting that participation does not necessarily lead to

planned learning, her concern echoes Bereiter's (2002) observation that education is increasingly concerned with learners' understanding current knowledge rather than generating new understanding. Those involved in teacher education need to be cautious of providing placement opportunities which enable student teachers to replicate teacher behaviours and which do not challenge or understand the teacher cognition which motivates those behaviours. The caution could be spread more widely to include reference to the involvement of co-operating teachers whose beliefs and practices may not be compatible with programme aims. Karen's reflections on her co-teacher's style illustrate that not all teaching modelled is productive for the student teacher learner.

While these examples have illustrated the benefits of working as co-teachers, participating in co-teaching does not in and of itself constitute a community of learning or practice. Participation does not necessarily imply meaningful contribution or that meaningful benefit accrues from this participation.

In Karen's case, her reflection on Chloe's organisation and engagement with pupils in one of the lessons for example was quite critical - see quotes from her vignette on p. 112 and 113 for her analysis of the woodlice lesson.

Perhaps Edwards (2005) underestimates the ability of participants in communities of practice to evaluate for themselves the practice observed and to critique it and to define themselves in contrast to the practice they observe. To some extent, by critiquing the practice observed, (*children were walking around the room, talking to their friends or doing other activities. The children were off task, talking out of turn, out of their places*) Karen is learning from it. However this learning was a difficult experience for Karen:

Throughout this disruptive episode I felt completely useless. I wanted to tell the pupils to stop touching the teacher, to sit down at their places, stop talking out of turn and focus their attention to the lesson Chloe and I had

planned. But what could I do ? This was Chloe's class, it was her prerogative to conduct the lessons in her classroom any way she wanted. (Final essay)

Karen's discomfort and powerlessness illustrates the myth of equal partnership in co-teaching. Her novice status precluded Karen from addressing the poor practice she observed; however it is unlikely that Chloe would have been similarly reticent about intervening or discussing a similarly poor performance by Karen. In this case being part of the community of practice did not involve Karen in a positive practice or expose her to productive practice. As a teacher learner Donagh expressed similar frustration as he described how he learned little from Meg.

These examples illustrated that communities of practice, though initiated to be worthwhile and reciprocal, do not always meet learners' needs. Parks (2009) highlighted that the collaborative cohesiveness in a community of practice can be problematic as it excludes voices of outsiders. In Karen's case, while in a community of practice, she didn't have the voice to distinguish her practice. In her case, and Donagh's, a more explicit statement or discussion of learning aims may have avoided the frustrations they experienced. The flexibility in learning focus which co-teaching learning offers participants, while beneficial as we saw in Ned's case, may be a looseness which undermines co-teaching as a learning experience for others. A clear articulation of the participants' learning focus would not preclude tangential learning occurring but would make it more likely that the frustration experienced by Karen and Donagh would be minimised.

6.2.3 Learning outside a community of practice

As discussed in the previous section, students did not experience collaborative engagements on their formal placements though did feel welcomed and to some extent supported in the schools. The relationships which developed still allowed student learning to occur, though this was outside a collaborative engagement with the teacher. This happened most frequently when the class teacher was

absent from the classroom and when students weren't concerned about supervision. The teacher's absence from the room and the lack of concern at scheduled supervision gave students a freedom to learn. They saw genuine learning opportunities happening outside of the formal structure and most impressively when they felt they had the autonomy to teach as they desired. Karen referred to this:

I was definitely more cautious when she was in the room, definitely. That was great I loved it I much preferred it to be honest. I had the class to myself. I could chance something that maybe wasn't on my lesson plan, maybe that I wouldn't do if my supervisor was there but nobody was watching. I could give it a go. (Interview 1)

In the absence of collaboration, students charted their own learning and as indicated above Karen enjoyed this autonomy and it was beneficial for her. It is clear that Karen liked having the class to herself not just because it signified the absence of a monitoring presence but because it afforded her an opportunity to try approaches or topics which otherwise she would have felt inhibited to undertake. Participation in a community of practice promoted learning in the co-teaching partnerships most of the time, but learning to teach opportunities are not confined to co-teaching. On the other hand Maura's experience with teaching literacy to her infants indicated that the autonomy wasn't always productive for the student or for the pupils.

The autonomous learning opportunities which Karen experienced on the formal placement and her learning with Chloe are both authentic practice situations (Brown *et al.*, 1989). Her experience and that of others illustrates that learning is not confined to co-practice situations and nor are all co-practice situations productive for both participants. However, as Barab and Duffy, (2000) maintain participation in co-practice, if successfully designed, not only supports the

development of specific skills, but offers the individual the opportunity to assess his or her competencies and motivation for that kind of work.

That the students enjoyed the independent teaching opportunities and benefitted from them enables us to place teacher learning in a context which is wider than a community of practice. Communities of practice have two essential tenets, namely knowledge is situated in specific contexts or practices and secondly this knowledge is best understood through critical reflection with others who share the same experience (Buysse, Sparkman, and Wesley, 2003). However, as the Karen and Chloe partnership illustrates sharing the *same experience* and critically reflecting on it does not lead to learning. It would appear that a shared learning goal is also required to create an effective community of practice. Wenger (1998) included in his definition of a community of practice the dimension of 'individuals sharing mutually-defined practices, beliefs and understandings' and this inclusion of '*mutually defined*' infers a connectedness and congruence between participants. Without it, as seen in Karen's episode, the gulf in practices and beliefs makes learning less likely. If knowledge building, either conceptual knowledge or practice knowledge, is the ultimate goal of communities of practice, the greater the practice dissonance between the members the less likely learning will occur. Roth (1998a) extends Wenger's definition of a community by reference to the '*unquestioned background assumptions, common sense and mundane reason they share*' (1998a, p. 10). Such emphasis on togetherness and unity of purpose, in the context of a community of practice, may be evident in a school-staff rather than in pairs of co-teachers. The staff have the benefit of working together long-term and of sustaining practice – a benefit not open to our co-teachers. Barab and Duffy (2000) describe as *practice fields* the collaborative learning communities in which participants collaborate on a bound task without sharing a connecting heritage or the prospect of a sustained relationship. Their term more accurately describes the co-teaching partnerships.

6.2.4 Teachers' Learning

Contrasting learning on formal placements and co-teaching

Openness to learning:

Teachers' involvement with the students on both placements was understandably different. Students characterised the teacher on the formal placement as 'there to help'. Because they didn't expect structured feedback or guidance, where it occurred it was a bonus. In terms of the types of learning, *learning from* most accurately describes the relationship. The co-operating teachers observed rather than participated in the students' teaching.

Meg described how the teacher was willing to provide advice:

she was very helpful and gave me advice whenever I needed; she might just give it or else I might ask her for it , she'd advise me on the best place to display stuff and for English .. she advised not to rush the reading , in maths she was helpful ..it was always helpful to know .. Meg Interview 1

As the students recounted their teachers' involvement, it was clear that the teachers were willing to offer advice to students but seemed unsure of their role. This was corroborated by the co-teachers when they were asked about their involvement with their student. Naoise described how she gave advice to her student:

I'd give positive and negative feedback – in Irish, the standard is quite good and I thought the work she was doing was too simple for them so I said you could put another couple of sentences into that or give them a few more difficult words, which she did do. She was open to this from the beginning anyway, she'd ask me what did I think of that so because she was doing that I was able to say what I needed to say we'd have a chat everyday, more as friends than as feedback. You'd like her to get on as well as she could because she was so good and we got on well, you'd just want the best for her.

Apart from requesting students to address particular topics, the teachers were not involved in the students planning, therefore their guidance was given after the lessons. This was similar to the reflective engagements in co-teaching except in co-teaching the reflection was focussed on jointly planned and jointly taught lessons. The cultural expectation of the co-operating teacher is firstly to facilitate and secondly, and optionally, to offer support. The teachers who hosted the students on their formal placement, including our co-teaching teachers, came through a placement system which afforded the teacher limited engagement.

While all the co-teaching teachers stated they enjoyed the experience, their learning was quite different to the student co-teachers. Chloe for example emphasised the interpersonal learning rather than the pedagogic learning:

for myself to learn how to get along with somebody else, how to break up the lesson plans, how to work within each other and offer ideas. We did have good ideas and there was a sense of flowing in and out of each other, we would input on each other's sections. It just felt like there was two of us teaching not two of us separate. Chloe Interview 2

Even though Chloe highlights a non-pedagogic learning, this learning would not have occurred for Chloe without a shared purpose and a shared experience which co-teaching created. In her first interview Chloe referred to the collaborative culture in the school, particularly regarding Maths and English, but co-teaching afforded her an opportunity to experience a teaching collaboration which involved a greater level of collaboration.

Students had the liberty to declare themselves as learners in co-teaching as they were still on their programme of study. With the teachers, though the co-teaching was presented as a learning opportunity for all, to declare that they have learned from the co-teaching was more difficult. It would appear that students saw themselves as learners, while teachers identified themselves as learners much less.

Naoise described her interaction with her student and with Ned:

I was observing her (the placement student) and maybe giving a tip here and there. With this, I never said anything about his teaching or anything like that. I was the two of us helping each other rather than saying "oh you could have done something here". It was way different. I felt as though I was more of an equal partnership with Nicholas. Whereas with (student) , I was just giving her advice, giving her a hand.

It was difficult for Naoise to see herself learning from Ned in what she described as an equal partnership. For Naoise it was easier to work with Ned, a student, rather than a colleague – she didn't feel that she was being observed by Ned, whereas if she was with another teacher she would have been much more self-conscious. Teachers' consciousness of judgement and being judged is a strong factor. Naoise, however, readily acknowledged how co-teaching with Ned had improved her approach to science lessons – saying that her approach is now much better and that co-teaching science gave her more confidence. Naoise found it easier to acknowledge learning from her co-teacher rather than from her colleagues.

Both Hilda and Donagh expressed satisfaction with the overall process but did not highlight learning for themselves. They were pleased to participate, were pleased to assist the co-teacher and pleased with the impact on the pupils but did not see a benefit for themselves. Donagh's experience with Meg underlines the importance of shared vision, collaboration and rapport in a community of practice. He felt that he was taking a lead role beyond what he expected:

Well the rapport wasn't there probably between us. I felt as if I was doing a lot of the planning myself and I would be putting ideas into her head. Like one week I tried to get her to think how could we introduce that lesson but I ended up coming up with it myself again. Now she taught the introduction and she's very good teacher. She is good at questioning the kids and very friendly with them. But I think the rapport that you build up is crucial. I would say its

beneficial for the student more. That might just be the case for this. I would say that I would have learned more if I got more feedback myself from the student. I wasn't getting feedback. But I'd ask "how do you feel this lesson went" and she'd go "ok" If I felt that I was getting a lot of feedback for me, it might make me more confident and we could have expressed ourselves more and got in to it more in depth. Donagh interview 2

Like the other co-teachers, Donagh embraced co-teaching on the premise that he was on an equal footing with his student co-teacher – equal in terms of contributing to the planning, teaching and reflection. However, Donagh felt that his contribution outweighed his co-teacher's thus leading to his frustration. Engagement between the co-teachers was a key process to promote teacher learning in this co-teaching and the limited dialogue between Donagh and Meg ensured that for Donagh co-teaching led to limited professional growth. Donagh's experience illustrates that teacher learning, even when the opportunities for this learning are embedded in practice, is not equally distributed in co-teaching which partners a more and a less experienced teacher.

Acting as co-operating teachers was a source of satisfaction to teachers and they considered it as a productive use of their insight and experience. However while preservice teachers' students are clear in terms of their requirements of co-operating teachers (Hobson, 2002), and co-operating teachers are eager to support this learning, the concept of reciprocal learning from preservice teachers is not addressed in the literature on teacher learning. Research on teacher professional development has moved from a deficit model to a teacher-learner model in which teacher cognition and not just teacher behaviour is recognised as important in leading towards learner outcomes. However the co-operating teacher as mentor to the preservice teacher would appear to mirror the deficit model of teacher learning – transfer of knowledge from the informed to the novice, thus precluding or overlooking the opportunity for teacher learning to occur in the process.

The challenge for co-teaching partnerships with preservice and co-operating teachers is to incorporate a more defined reciprocal element which can, as Zwart *et al.*, (2007) suggest, allow the teachers take turns at being a 'teacher coach and a coached teacher' (p. 167). The incorporation of a teaching analysis framework, such as Hiebert *et al.*, (2007) outline, which focuses analysis of teacher actions in the context of learner experiences may provide a more structured reflective framework and which may highlight learning points for both co-teachers.

6.3 Theme 3: Teacher Knowledge

The recognition that teacher knowledge encompasses aspects of procedural knowledge, content knowledge and contextual knowledge has given added dimension to the study of teacher learning. The literature review addressed the research on teacher knowledge and ranged from developments and critiques of Shulman and Banks to Hiebert's advocacy of the teacher collaboration as a means of unearthing and making explicit teachers' practitioner knowledge.

Thiessen describes teacher knowledge as 'practical knowledge (routines, procedures, processes) and propositional knowledge (discipline-based theories and concepts, pedagogical principles, situation-specific propositions)' (Thiessen, 2000, p. 528) and the challenge for the beginning teacher is to use both in an integrated and purposeful manner. In this section teacher knowledge is examined and the question directing the analysis is what types of teacher knowledge does co-teaching develop? Borrowing from Thiessen's classification, the task is to identify how co-teaching enables 'propositionally interpreted practical knowledge' become apparent. As the context in which learning occurs influences the nature and depth of the learning, the sections dealing with relationships and community of practice offer that context. Data from this study is used to illustrate what is learned, reference to how learning occurs – the relationships and approaches - is of limited value unless reference is made to what is learned.

As an opportunity to learn about teaching, co-teaching facilitates reflection on one's own teaching and the teaching of the co-teacher. When learning from the other, the participants were reflecting on their *study of teachers* and *study of their own teaching*. *Study of teachers* is chosen as a concept rather than study of teaching because it acknowledges that teacher cognition and teacher's interpretation of engagements with pupils are determined by the specifics of the context. Each co-teacher was studying an individual teacher and how that teacher taught rather than studying a generic activity called teaching. This view is informed by the belief that the nuance of the specific reveals the tacit knowledge of the teacher. It holds with Freeman and Johnson (1998) who regard schools and classrooms as:

‘the sociocultural terrain in which the work of teaching is thought about, carried out , and evaluated. Studying, understanding, and learning how to negotiate the dynamics of these powerful environments, in which some actions and ways of being are valued and encouraged whereas others are downplayed, ignored, and even silenced, is critical to constructing effective teacher education’ (Freeman and Johnson, 1998, p. 409).

Of importance here is the recognition that teacher knowledge is both applied in a specific context and shaped by that context. In terms of teacher learning, primacy is not given to the school context over the ‘college’ context, but the influence of the school context on how teacher knowledge is displayed or used or called into use is important. When participants describe their *study of teachers*, they are reflecting on the teacher knowledge they witness. As Orton (1993), writing about situated and tacit teacher knowledge, pointed out identifying a teacher action as tacit knowledge does not indicate what knowledge informs that action. Reflection, or assisted reflection in the case of co-teaching, facilitates understanding of teacher action, rather than observing and labelling it. When striving to understand teachers’ actions or the knowledge underpinning their actions, an activity theory perspective encourages the recognition that while

teachers may work individually, the rules and tools shaping their work collectively developed, have a history and are culturally relevant. Though activity theory was not used as the theoretical framework for this research, its reference to the cultural and historical dimension of knowledge is relevant in the context of situated cognition. As Ellis maintained:

‘A cultural-historical perspective seeks to understand the situatedness of knowledge and the participatory nature of learning, not in terms of knowledge being relativistically situation-bound or learning merely as reproduction, but in trying to explain the relationship between local activity by human agents in specific settings and the historical, culture-making processes that allow ideas to travel’ (Ellis, 2010, p. 97).

This suggests that what teachers (at any level) regard as knowledge is shaped by their cultural and historical context. In terms of teacher knowledge, what did the *study of teachers* reveal and what did the *self-study* reveal?

6.3.1 Teacher study: The co-operating teachers

Firstly the teachers’ involvement in teacher study will be addressed. The participant teachers had two opportunities for teacher study – firstly with their student on formal placement and secondly with their co-teacher (the student). The class teachers’ study of the placement student is discussed first. While this research is focussed on teacher learning in co-teaching, examining teacher learning in the formal placements enabled a comparison of the opportunities and depth of teacher learning that occurs in both.

6.3.2 The co-operating teachers studying their placement student

On the formal placement, the student teachers taught in the class for five weeks and this gave the teachers an opportunity to observe the teaching to the extent

that they wished. As is clear from both the student accounts and the teacher accounts, the teachers spent limited time formally observing the student teach.

Hilda used her pedagogical content knowledge to assist her student and gave two examples:

In one science lesson on floating and sinking she said it was a disaster – what did I do wrong and I said you did nothing wrong , they're six year olds playing with water - maybe the next time model it for them , do it at the top of the class. In Maths she had the best group of the two classes and I felt she wasn't aiming high enough so I had to help her there.

Chloe referred to how she assisted her student teaching Maths:

when she was teaching money they didn't get it , even the best of them didn't and she couldn't understand it . She didn't see all the work that had to be done before they could do what she wanted . I had to tell her to slow right down right back to the basics, we had just done tens and she wanted them to give change in tens and units...she got an awful fright that she wasn't getting through to them , all of a sudden .. she couldn't see why they couldn't get it. We would have discussed a lot after that.

When the student was experiencing a difficulty with pedagogical science knowledge the teacher came to her assistance. It was the teacher's advanced pedagogical knowledge in science that was helpful to the student.

The teachers, Hilda and Chloe, by observing and commenting on the students' approach, articulate their own teacher knowledge. Because their advice is specific to the witnessed actions of the students and informed by their knowledge of the pupils, their advice is relevant to the students' practice. This explicating of teacher knowledge is context bound and relevant to the students' immediate learning about teaching. The students gain access to the teacher's knowledge when the teacher compares approaches. Verloop *et al.*, (2001) acknowledge that eliciting the tacit elements of a mentor teacher's practical knowledge is time consuming,

however, when the co-operating teacher engages in teacher study (study of the student's teaching) the knowledge is not being elicited but offered in a contextually appropriate manner. That this knowledge can be articulated by a teacher in response to observed practice is the key – the manner in which it is communicated is a different matter. These examples illustrate that where co-operating teachers engage in teacher study they can articulate and share relevant pedagogic knowledge. They make their own intuitive knowledge visible when reviewing the students' actions. While these exemplify the benefit of clinical reasoning (Kriewaldt and Turnidge, 2013), the students, in recounting their experiences on formal placements, indicated that this did not occur with any uniformity or frequency, nor can we infer from the examples that there was greater depth to these interactions. For example, both Chloe and Hilda refer to the appropriate pitching of content of the learners' prior understanding but no reference is made to approaches which the students could use to establish appropriate starting points. Referring back to Thiessen's 'propositionally interpreted practical knowledge' (2000, p. 530), it has to be acknowledged that the teacher's focus is on practically relevant knowledge without situating it in a theoretical context.

When teachers were asked about why they liked to host students, they made reference to learning from the students and getting new or fresh ideas. Chloe is typical of the teachers in saying:

I love having students because I feel that I get a taste of what's happening, we don't get to see a lot of new ideas and as a teacher you do what you're comfortable with so the students come in and they use IT or an idea I like to steal it - that's the value to me. (Chloe Interview 1)

While benefit (of hosting a student) is acknowledged, it tends to be general and the perceived benefit is not the reason for hosting a student. 'New ideas' and 'loads of ideas' infers exposure to instructional approaches rather than implying learning about them. It is not clear that co-operating teachers see having students

as a learning opportunity but they do see it as an opportunity to contribute to the students' learning. The co-operating teachers, recognising that the placements are constituted to facilitate student teacher learning, convey no expectation about the placement as a learning opportunity for themselves.

6.3.3 Teachers studying their co-teaching partner

On the formal placement, the teacher had no defined role apart from facilitating the student. On the co-teaching, however, all teacher learning was promoted and teachers became involved on the basis that it would be a learning opportunity for themselves as well. However because co-teaching is a collaborative endeavour, the opportunity to observe at a distance is inimical to the process – opportunities did occur but the emphasis was on working *with* and learning *from* by working *with*.

The class teachers enjoyed co-teaching as a different teaching experience but were unable to indicate how they learned from their co-teacher. They were unable to indicate if there was a particular skill or approach that they learned from their co-teacher that they would not have experienced with a different co-teacher. In Hilda's case this may be because as a recent graduate her experience was similar to Maura's.

Learning from teaching

The class teachers, as co-teachers emphasised learning *from teaching* rather than learning from their *co-teacher*. From the teachers' perspective co-teaching lessons was an entirely different experience in comparison to their role as co-operating teacher. As co-operating teachers they had the opportunity to observe their student; in co-teaching the opportunity to remove oneself from the lesson didn't arise – they were part of it. When teaching, the priority is pupils' learning rather than one's own learning. Experienced teachers have that focus on pupils' learning embedded in their thinking while student teachers, while concerned about pupils'

learning, they are also aware of his/her own status as learner and in comparison to the teacher, and in this research were significantly keener to use a teaching experience as a learning experience for themselves.

Challenges to mentoring within co-teaching

All of the teachers defined co-teaching with an emphasis on working with their co-teacher, the student. When they see themselves as equal with their co-teacher, they are less likely to expect to learn from the co-teacher. Similarly they are less likely to want to give feedback to the co-teacher they regard as an equal. As Burn *et al.*, (2015) pointed out working alongside a beginning teacher on collaborative planning does not threaten or undermine either participant whereas the giving of feedback 'tends to foreground the hierarchical nature of your relationship' (p. 52). In this co-teaching, given the short duration of the partnerships, participants shied away from constructively critical comments which may have been more forthcoming had time allowed for robust relationships to be developed.

The challenging of observed practice so as to promote progress is absent in these co-teaching relationships. With its emphasis on learning *with* and learning *from*, the traditional and constructive role of mentor is diminished once co-teaching becomes the model.

Unless the co-teaching promotes and expects the type of interaction associated with the mentor/mentee relationship, the learning outcome is determined by the learner rather than directed by the mentor teacher. Mentoring in teacher education, as defined by Fairbanks *et al.*, (2000) includes:

'complex social interactions that mentor teachers and student teachers' construct and negotiate for a variety of professional purposes and in response to the contextual factors they encounter' (p. 103).

Co-teaching can also enable a shared experience of professional purposes (e.g. lesson planning, investigation planning and lesson evaluation) but a mentoring relationship has an inherent *teacher* and *learner* hierarchy which defines roles and

creates expectations. In co-teaching, allowing both participants to be *teacher* and *learner*, the looseness of these roles allowed the *learner role* become dominant and thus the distinct contribution of the experienced teacher was less forceful or direct in comparison to a mentoring relationship.

Commitment to reciprocal mentoring within co-teaching

The adaption of co-teaching to include the principles of reciprocal mentoring (Paris, 2013) would address this imbalance and legitimate the provision of advice from the experienced teacher to the less experienced teacher. Reciprocal mentoring recognises the continuum of teacher learning and empowers the student teacher as mentor without diminishing the experienced teacher as mentor. Reciprocal mentoring echoes calls for a 'commitment to reciprocity and reciprocal learning relationships' from Le Cornu and Ewing, who suggested:

By emphasising the reciprocal nature of the learning process ... very different professional experiences not only for pre-service teachers but also for their mentor teachers and university mentors are possible... we must value the contribution that pre-service teachers can make to their professional learning (2008, p. 1809).

Enabling the articulation of the student perspective has the further benefit of broadening teachers' perspectives. The co-teachers emphasised their enjoyment from participating rather than identifying a pedagogical benefit from participating. Both Chloe and Hilda agreed that the opportunity to teach more science was beneficial and the opportunity to collaborate with another teacher was beneficial. Donagh confined his benefits to the opportunity to teach more science lessons.

This co-teaching initiative, though designed to enable participants articulate their tacit knowledge, underestimated the necessity to incorporate formal and demanding processes which would lead to the documentation of the participants' tacit knowledge. To judge by this co-teaching experience, teachers require more

than collaborative teaching experiences to enable them identify and articulate this tacit knowledge.

6.3.4 Teacher study: The students studying their placement teacher

The formal placements gave students limited opportunities to engage in teacher study as teacher observation was limited. However the advice offered by the co-operating teacher, when it occurred, was insightful for the students. Referring to her placement teacher, Meg stated:

she'd advise me on the best place to display stuff and for English. She advised not to rush the reading, in maths she was helpful. It was always helpful to know about some pupils' family backgrounds which helped me understand pupils.

Her teacher exhibited pedagogic knowledge by advising Meg not to rush her reading lessons and illustrated the importance of contextual knowledge by referring to characteristics of individual learners. For Meg, teacher study was an opportunity to learn *about* teaching *from* a teacher.

In contrast, Maura felt that her class teacher could have been more helpful to her and felt that there were occasions when she '*walked right into something*' (Interview 3). She recounts her experience with teaching literacy to Senior infants:

English was the hardest, senior infants starting to read. She was trying a new approach herself but left it very open to myself - do what you think there, you can try whatever approach. That could have been more laid out especially for the pupils who had difficulty reading. She didn't say it to me, I figured it out myself, they weren't getting guidance at home, you could tell straight away. She wouldn't have said that to me beforehand.

In this case the teacher's subject pedagogical knowledge would have been beneficial to Maura but the lack of a relationship with or insight by the co-operating teacher meant it wasn't forthcoming. Maura identifies the type of knowledge advice which would have helped her overcome difficulties. The teacher

offered Maura a free-rein in terms of an approach to teaching reading. If this was intended as being helpfully non-interventionist, Maura experienced it as being unhelpfully remote. As highlighted in the Findings chapter, the preservice teachers had little opportunities to observe their placement co-operating teachers therefore their teacher study opportunities were limited. The teacher knowledge shared was limited and depended on the relationship between the student and teacher.

6.3.5 Students studying their co-teaching partner

Being part of a partnership allowed Karen focus on particular aspects of teaching and leave other aspects to her co-teacher –

I feel I don't need to work out the strategies of classroom management , that sort of thing, that doesn't worry me now, I just teach science , I don't have to worry about organising teams, Chloe looks after that. Karen Interview 2

Though issues such as classroom management were delegated to Chloe, Karen still learned about them by observing:

I think I am learning, not just to do with science, even basic general teaching things, how she organises the classroom and talking to the children, small things like that, you know it's nice to see a teacher teaching rather than normally I would teach myself. My teacher and I are teaching we are learning from each other, it might not necessarily be the right thing we are learning, whereas now I am teaching with the teacher, who is teaching ten years or whatever. I am not saying that her way works either, but at least I am watching her.

Karen was respectful of Chloe's experience but had sufficient experience herself to interpret what she observed and realised that not all of what she was observing was beneficial to her. This illustrated that observation is most valuable when the beginning teacher has sufficient experience to appreciate the complexity of

teaching and the diverse demands made on the teacher (Hagger and McIntyre, 2006).

Students' prior experience enabling learning within co-teaching

Ned made the same point, he was observing the teacher's approach:

there are 23 in the class, which isn't massive but I'm still learning to do the practical things, settling groups and organising roles within each group then. My co-teacher has that pretty much down to a fine art because she is using it so frequently, it is a good model to learn from. It isn't a very elaborate system but it is a system that is working well.

Ned was able to discern the contextual knowledge which informed the teacher's approach:

its a mixture of ease of management, where the children are sitting in the classroom and mixed abilities and behaviour. She has thought through the groups to make sure that they will work well together (Interview 2).

Thiessen's propositional knowledge (2002) was what the student co-teachers most frequently observed. Ned's observation was a manifestation of Lave and Wenger's belief that '*learning is embedded within activity, context and culture*' (1991, p.1).

The absence of structured analysis of lessons may have left teaching points unaddressed but the students were keen observers and learners. Here Ned was able to identify his partner's tacit knowledge, which he witnessed as she dealt with 'mundane things and everyday interactions':

when I walking around I get to see , what Naoise might call mundane things, everyday interactions, to see how to maximise these interactions for science teaching when you see a practitioner of Naoise's experience dealing with them , you notice when the issues resonate with something that you've experienced before. Interview 2

Meg, in observing and analysing her co-teacher's questioning style, illustrated a similar capacity to interpret actions. She associated an affective teacher trait, his relationship with pupils, with his success in questioning:

It's not all one sided teacher talk, his enthusiasm, he's not uptight, the children respond to him well, they get on well with him.

Similar to Ned and Chloe, Meg was able to identify productive teacher behaviour and can surmise that it was teacher cognition which enabled them to do this. In terms of what the pupils would be doing in the science lessons, working collaboratively and independently, Ned identified the Naoise's mastery of classroom management and organisational issues as a means to an end:

The benefits for me are that I get to see this groupwork in practice, but that's more of a physical or managerial thing, I need to experience these things in the classroom but having a head start now before September is very good. I am getting to teach more science and see how children learn more science, which when you are honing in on one subject is very interesting to see how they develop, especially when they are a series of more or less one off lessons, it is interesting to see how the children pick up the science; to see how effective the questioning or talk strategies are, you can read about them but seeing them in practice is really the key. Then for the investigation lessons, where there is more hands on, more children driven, it is interesting to see what problems they encounter, that even an experienced teacher wouldn't envisage, definitely a student teacher wouldn't envisage. The challenge for the coming weeks, is that we maximise our knowledge of process skills, as well as conceptual knowledge and information because all along, I hate to say that we have been negligent of process skills but I suppose by not drawing enough reference to them we really were being negligent of them and focussing in on conceptual science, but now we are going to go all out to get process skills and knowledge, working in tandem. Ned Interview 2

Ned identifies how Naoise establishes a learning climate in the classroom and then considers how it is exploited for science learning. Though content to learn about Naoise's classroom management, he identifies the opportunities this provides for the promotion of the process skills.

6.4 Summary

The insights and practice amassed on formal placements enabled the students to identify the pedagogical reasoning of their co-teacher. The identification of these approaches – issues relating to classroom management, questioning – and reflection on them is driven by the student co-teacher himself or herself rather than led by the co-teacher. As referred to earlier, the emphasis on both participants as learners in co-teaching may account for the co-teachers' reticence about making forthright and deliberate observations about their partner's teaching or their own teaching. This was more close up scrutiny of a teacher's pedagogy rather than the teachers deprivatising their pedagogy in a dialogue with their co-teacher. In the context of co-teaching, Kriewaldt and Turnidge's (2013) call for critical and reciprocal dialogue will be more likely to occur if formally structured and if teachers have the language to articulate their tacit knowledge.

In this research, the student co-teachers, more than the teacher co-teachers were able to use the artefacts of teaching and the reflective opportunities to document their professional knowledge. As student teachers who recently completed their schedule of placements which involved extensive reflective practice and tutor and peer discussions about pedagogical thinking and decision making, they may have been more familiar with the language of analysing teaching and learning than their co-teachers.

Chapter 7 Limitations, Conclusions and Implications

This case study of co-teaching was limited to four partnerships and extended over a short duration, the co-teaching partnerships extended over a nine week period, teaching for approximately ninety minutes per week. Prior to addressing conclusions and implications arising from the research, it is appropriate to consider aspects of the study which in the context of recommendations and conclusions are the limitations associated with this research.

7.1 Limitations of this research

When considering the implications of this study, it is important to note that it documented the experiences of four co-teaching partnerships, and the limited scale of the study is acknowledged. Regarding the participants, having established that they met the criteria detailed in Chapter 3, all were self-selecting, in other words, they all opted to participate in the study. When considering the transferability of the findings to other teachers and student teachers, regarding teacher learning, it is important to be cognisant of the committed nature of the participants in this research.

The research focussed on the experiences of the each separate co-teaching partnership. While no opportunity presented itself for continuous peer engagement by the teacher co-teachers, the student co-teachers were together on a weekly basis for other elements of their co-teaching module. Taking advantage of this to complete group interviews may have yielded further data and may have identified aspects of emphasis or concern to them as participants.

A theme which emerged and which was addressed in the Findings chapter was the divergence in teaching styles and expectations in two of the cases, namely Karen and Chloe and Meg and Donagh. The community of practice model emphasises the importance of participants operating in an agreed framework, sharing learning

goals and beliefs. Greater attention could have been paid to creating congruent partnerships so that the focus was primarily on the co-teaching experience rather than the dynamic within the particular community of practice.

The data from the research emanated from the participants – their descriptions of sessions, vignettes, interview data and lesson plan templates and reflections. In an effort to distinguish this research from the formal placements, no element of documented observation of co-teaching sessions by the researcher formed part of the data collection. While the commitment to the participants' voice is a hallmark of qualitative research, and such an approach guards against researcher bias, dependency on the participants' documentation in this research is acknowledged.

The limited duration of the research meant that the experience within each teaching session and the individuals' experiences to the exclusion of the contextually situated history of each setting became the focus. The historical dimension, as well as the cultural dimension of an activity system, influences the conduct and potential within that system (Prichard, 2010) and this research was not sufficiently broad to determine to extend to which the professional histories and cultural contexts influenced the co-teachers engagements.

7.2 Conclusions

This study enabled the participants to reflect on their learning in formal placements, either as students on placement or as co-operating teachers, and to reflect on their learning as participants in co-teaching. Conclusions can be drawn from the data presented in both contexts and therefore are presented as conclusions regarding formal placements and then co-teaching. The study addressed three questions related to teacher learning: – the opportunities co-teaching presented for student teacher learning, how it enabled the co-operating teacher contribute to the student's learning and the contribution co-teaching

made to the teacher's learning. The following conclusions are made while mindful of the complexity of teacher learning and are offered with the caveat from Thomas (2011) who reminds us conclusions in social inquiry are tentative, especially those emerging from case study.

Formal placements

It is clear that regarding mentoring and support, in the absence of formal guidance from the college, local arrangements between the student and co-operating teacher become the norm. As outlined by the students, engagement with the co-operating teacher on placement varies but with the exception of one student, all would have welcomed greater engagement. Students are keen to learn from the co-operating teachers but regard affirmation of their efforts as more significant than formal feedback on their teaching.

Even though students welcome teacher feedback, they also welcome the autonomy of teaching on their own in the teacher's absence and at times preferred teaching in this context, indicating that valuable learning took place when they had autonomy from the class teacher and when they were not concerned about supervision. Being supervised by a college tutor or being watched by a teacher was regarded as inhibiting. The absence of judgement from the supervisor or class teacher gave students license to take risks in their teaching, a trait which was curbed when under observation. Students on formal placements have difficulty in distinguishing between the tutor as mentor and assessor and view supervision largely as a monitoring experience rather than a mentoring one. A reconceptualization of the placement as facilitating autonomous learning may assist in removing its performance orientation.

The participating teachers, while keen to facilitate students on placement, expressed anxiety about their pupils' progress when accommodating their student. As it transpired, all expressed satisfaction, if not admiration, for the effort

and commitment of their student. In turn, it may have been because they judged that the student was performing well that they had little critical involvement with them.

The sharing of professional knowledge and engagement in professional dialogue with the student on placement is limited. While the protocols promoting teacher-student engagement are necessary, equally important is the development of a common discourse focussed on pedagogy.

Co-teaching

Co-teaching offered opportunities for both co-teachers to learn from each other by participating in a community of practice. The community of practice is framed by participants' use of artefacts (e.g. lesson planning templates) designed to promote dialogue about the lessons to be undertaken. Learning accrued from talking about the shared endeavour as well as engaging in collaborative teaching. Brown and McIntyre (1993) suggest that in order to inform theory, policy and practice in a comprehensive manner, an understanding of teaching should incorporate:

‘...an understanding of how teachers themselves make sense of what they do, how they construe and evaluate their own teaching, how they make judgements, and why, in their own, understanding, they choose to act in particular ways in specific circumstances to achieve their successes’ (Brown and McIntyre, 1993, p. 1).

The dialogue inherent in co-teaching assisted the participants making their judgements, actions and evaluations transparent to each other. In cases where both co-teachers shared and fulfilled an understanding of co-teaching, this dialogue was most productive. The promotion of collaborative planning, teaching and reflection in itself does not create Loughran's shared language of teaching

(Loughran, 2010), but does enable those most familiar with using these as tools of learning to benefit from the collaborative aspect of co-teaching. In this research, it was the students who were best equipped to do this.

Student co-teachers' previous placement experience enabled them to review their own and their co-teacher's practice and they were able to 'see' pedagogically relevant decisions or actions of the co-teacher. As teacher learners, the students focussed more on their own learning and comfortably saw themselves as teacher learners. The experienced teachers, however, more readily identified pupils' learning as an outcome rather than their own learning. Though the discourse refers to the teacher learning continuum, the teachers' self-concept is one of teacher rather than learner.

Teacher learning was the focus of this co-teaching but the specific teaching skills to be learned or developed were not predetermined but emerged from the practice of both co-teachers. It was up to each co-teacher to identify in the practice of their co-teaching partner an aspect that was worthwhile and significant for them. This necessitated a reflective ability and an ability to 'see' practice. As an open learning model, it was appropriate for experienced teachers and student teachers as it presupposed a level of experience. However, an open learning model, which does not include Wenger's 'mutually defined learning goals' (1998) can result in unfulfilled potential. To be an effective model of teacher learning, not solely *student teacher learning*, a reciprocal dimension can be added to Wenger's *mutually defined learning goals* as another essential component. Norton-Meier and Drake (2010) identify the absence of the reciprocal dimension as a concern for partnerships which emulate the principles of *third space* initiatives.

7.3 Implications of this research

In Chapter 3 this research was classified as participatory action research case study in which the dynamics of each case sought to develop insight into co-teaching as a teacher learning initiative. Case study does not eschew recommendations but generalisability from case study is problematic. Alasuutari (1995) suggests *extrapolation* more accurately describes the purpose of qualitative research, as it avoids declarative statements. With that in mind, arising from our understanding of these co-teaching case studies, the following can be stated:

- Participation by final year students in co-teaching with experienced teachers is beneficial for their learning and particularly when a good relationship develops between the co-teachers. To increase the likelihood of planned learning occurring, for future partnerships consideration should be given to identifying these outcomes in advance of the planning and teaching sessions. As a result of the open learning model exemplified in these partnerships, co-teachers, particularly the teachers, were unable to highlight learning outcomes for themselves. As discussed on p. 47, Barab and Roth (2006), highlighted the importance of supporting artefacts and most importantly *goal sets* for learning to occur within *affordance networks*. Clarity in the learning objectives set by each participant, or as Cochran-Smith and Lytle suggested, 'systematic intentional inquiry' (1992, p. 317) may lead to more productive engagements.
- In co-teaching situations where participants subscribe to the concept of both as teachers and both as learners, mechanisms need to be adopted to ensure that co-teachers' interaction does not follow the traditional hierarchy of expert teacher and novice student. Inserting a clear reciprocal mentoring dimension to the joint evaluations would ensure that both co-teachers receive constructive critical comment.

In the course of this study the policy framework guiding co-operating teachers' participation in school placement was developed. The *Guidelines on School*

Placement (Teaching Council, 2013) afforded official recognition to the co-operating teacher's role for the first time. These *Guidelines* are part of the partnership jigsaw and aimed to empower co-operating teachers as school-based mentors. Stressing that the co-operating teacher has no evaluative role, the *Guidelines* indicated a recognition of their expertise. While, in comparison to the *Criteria and Guidelines for Programme Providers* (Teaching Council, 2011), they represent a dilution of the responsibilities envisaged for school personnel (Harford and O'Doherty, 2016), the *Guidelines* are significant as philosophically they invited a reconceptualisation of the relationships between the key players on school placement, namely the student, the tutor and the co-operating teacher.

In practice, the limited distribution of the *Guidelines* to schools meant that they have little impact on current practice. Promoting the role of the co-operating teacher is the first step in the evolution of partnerships which can sustain collaborative learning and reciprocal relationships (Le Cornu and Ewing, 2008). Both the *Criteria* (Teaching Council, 2011), and the *Guidelines* (Teaching Council, 2013) can be interpreted as espousing Zeichner's hybrid space (2010) in which academic and practitioner knowledge support the student teacher's learning. As student teachers, at undergraduate or postgraduate level, spend significant time in schools, promotion of the co-operating teacher's role should happen at a national level rather than through small-scale initiatives from various providers. In the absence of such promotion, commitment to partnership and new models of placement will remain as an example of Green's policy as discourse rather than policy as practice (Green, 2002). Martin *et al.*, (2011) suggested:

'if we are to move toward more egalitarian social practices and relations to enhance the educative value of student teaching experiences, we will need to understand more about how hybrid teacher educators go about establishing multiple relationships and negotiating the challenges and tensions of complex social contexts' (2011, p. 301).

It is certainly premature to regard co-operating teachers as ‘hybrid teacher educators’ but the *Guidelines*, if sufficiently resourced, have the potential to promote collaboration rather than co-operation on school placement, thus progressing the partnership continuum.

The *Guidelines*, while an acknowledgement of the role of the co-operating teacher, amount to little more than a series of steps the teacher can take to facilitate the student’s teaching, but indicate that in this country the empowerment and collaboration of co-operating teachers is at a very early stage.

As this research illustrates, for teachers to promote meaningful (student) teacher learning they need to be supported in acquiring a language that enables them make accessible to the student what they regard as intuitive knowledge. This research shares the caution expressed by Levine and Marcus (2010) regarding the contention of ‘if you build it, they will learn’ (p. 397) regarding communities of practice. Instead of open-ended exhortations to collaboration, they suggest the use of specific protocol-guided discussion as a mean of structuring and focussing teachers’ professional discussions. The incorporation of this type of support within the *Guidelines*, would transform them from declarations of what co-operating teachers should do, to suggesting how the intended collaboration could be achieved. For this collaboration, sharing of insight and knowledge by co-operating teachers, to be meaningful and significant for the student teachers’ learning, it will necessitate Zeichner’s boundary crossing – crossing here implies that co-operating teachers have the capacity to relate their knowledge and practice to both the practice and theory domains. Without both components, they infer that theoretical knowledge of practice is the domain of the college tutor and thereby reinforce a hierarchy regarding teacher knowledge. Learning processes may be productive, reproductive, unproductive and even counterproductive, to use the categorization offered by Lillejord and Dysthe (2008) and the academic leadership which Waitoller and Kozleski (2013) consider as necessary to enable boundary

crossing is a dimension which has been overlooked in the partnership as conceptualized in the *Guidelines*.

At a local level, the implications of these conclusions have resulted in the drafting of co-operating teacher-student dialogue guidelines in the researcher's institution. Building on the exhortations in the *Guidelines* to *discuss with* and *encourage* the student, co-operating teachers are now given written guidance which support their conversations about specific teaching methodologies or planning issues. In offering specific guidance it is hoped to stimulate professional dialogue from which both co-operating teacher and student teacher can benefit. As part of this process, the students are required to include reference to this dialogue in their weekly reflective practice journals, thus acknowledging the legitimacy and importance of the co-operating teacher's feedback to the student. It is essential to ensure that teacher learning is not reduced to a series of acquired teacher behaviours and extending the teacher-student dialogue to include Brante's 'know why' professional knowledge (2010) is a means of enriching discussion of everyday classroom events. The next step in this process is to invite the co-operating teacher to participate in the tutor-student professional dialogue as a modelling and empowering exercise.

At a national level, the research indicates that the current *Guidelines*, while a welcome initiative, do not involve the teacher and student in a meaningful dialogue. Their revision, accompanied by a country-wide programme of co-operating teacher mentoring are necessary if teachers' insight is to be used to promote student learning. In the context of *Cosán*, the Teaching Council's National Framework for Teachers' Learning, (Teaching Council, 2016) it would be appropriate that the continuing professional development dimension of the co-operating teachers' role would be recognised.

Similarly, acknowledgement of the school and teachers as participants in school placement should be an intrinsic part of DES school evaluation reports by way of recognising the school commitment to professional renewal. The performance culture in schools inhibits participation in school placement. While national policy as articulated by the Teaching Council (2011) promotes participation by schools, the evaluation of schools by the Department of Education and Skills inspectorate does not acknowledge such participation. At a time when schools oblige colleges, and other providers, by hosting students, the DES evaluation reports on schools should record this professional endeavour and commitment. By engaging in informal mentoring of students, co-operating teachers are fulfilling their role in school placement partnership and this participation merits formal recognition by those who promote such participation. Such recognition may also serve as an impetus to improve and standardise the feedback offered and promote a discourse of teacher learning.

These three steps, revision of the *Guidelines*, roll out of support networks for co-operating teachers and DES recognition of participating schools, would indicate to co-operating teachers that their role is significant and is valued.

7.4 Areas of further study

Since 2012 all accredited teacher education programmes (primary), have included placement models which acknowledge the role of the co-operating teacher as an informal mentor. The Guidelines on School Placement (Teaching Council, 2013) provide the policy framework to support their engagement with the student on placement and with the tutor. The extent to which co-operating teachers have changed their practice in light of this policy, their perspectives on their re-defined role and the rewards and challenges inherent in this role are areas of relevant research. Such research would indicate the extent to which the role of the co-operating teacher and stakeholder relationships are evolving in light of promoted practice. It would also indicate the nature and focus of the interventions that are required to enable co-operating teachers reach their potential as class-based

mentors, in other words, identify co-operating teachers' professional knowledge requirements which would enhance their role.

This research indicates that co-teaching with experienced teachers is beneficial for student teachers. Taking on board the conclusions of this study regarding the importance of a reciprocal dimension for both co-teachers' learning and the importance of agreed learning outcomes for both co-teachers, a larger scale co-teaching study incorporating these principles in its design would be worthwhile. This small scale study has indicated the value of co-teaching as a teacher learning initiative primarily for the student co-teacher. With adjustments a larger study could promote the professional learning of both co-teachers and assist co-operating teachers identifying themselves as learners as well as teachers.

7.5 Concluding thoughts

Much like teacher learning, the journey of this research has the hallmarks of a never-ending endeavour. What began as a collaborative teaching initiative became a focus of research. As often happens when the initial stimulus is overtaken by the enormity of the research challenge, enthusiasm for the research ebbed and flowed. Many tangents were pursued, grounded theory, activity theory to name but two, all of which were as illuminating as they were distracting. As my own teacher learning journey has taken me from primary level to university level and from the developed to the developing world, it has been a privilege to be able to devote time to pursuing this research topic and to engage along the way with so many inspiring and committed teachers. I thank all who shaped my insight, either through direct engagement or by facilitating my continued study.

This study was based in a city in the mid-west of the Rep. of Ireland, a city where Lancaster opened a school in 1806. The Lancaster model inducted the most capable pupils as assistant teachers and can be regarded as the original teacher education model. More than two hundred year later, as models of teacher

education continue to evolve Brendan Kennelly's words offer a metaphor of constant renewal and provide a fitting closure:

Though we live in a world that dreams of ending

That always seems about to give in

Something that will not acknowledge conclusion

Insists that we forever begin.

(Kennelly, 2001:104)

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Appendix 1 Consent Forms

Research Information Sheet (Core Participants)

Coteaching: Researching Teachers' Learning

Researcher: Neil Ó Conaill, Dept of Learning, Society, and Religious Education,
[REDACTED].

What the research is about:

This research is concerned with teachers' professional knowledge and the Central to all teacher education programmes is the practicum element, the opportunity for student teachers to practice teaching. This element of the programme can be organised in different ways and this research sets out to examine the outcome of a co-teaching placement on the professional knowledge of the teacher and the student teacher and the socialisation of preservice teachers into teaching. It explores what can be gained by the student teacher and the class teacher from 'teaching at the elbow of another' as compared to the traditional approach of placing the student in the teacher's class and teaching on their own. It examines the contribution class teachers can make to preservice teachers learning in a co-teaching context and also examines how co-teaching benefits the experienced teacher.

Purpose of the research:

This research is conducted in part completion of a doctoral degree.

Who is involved:

Core participants: Class teachers and final year student teachers.

Peripheral participants: The student teachers and the class teachers in whose classrooms the core participants are based in November/December 2007.

Researcher: Neil Ó Conaill, [REDACTED]

What does it involve:

Phase One: November / December 2007

A preservice teacher is on placement in the participant's class for five weeks in November/December 2007. At the end of this placement the participant will be interviewed about the experience of having a student in the classroom. The interview will focus on the level of interaction between the teacher and student, the perception of their role during the placement, the level and nature of support offered to the student during the placement and how the participant benefitted from the student teacher's presence in the classroom. It seeks to address the planned and chance learning encounters experienced during the placement. This interview will be audio-taped and will take place as soon possible after the student placement finishes at a mutually convenient time. The student teacher on placement in the participant's classroom does not participate in the research in any form, though their consent for the class teacher to be interviewed will be sought. As a Faculty member in [REDACTED], I will have no role in assessing these student on their teaching practice (TP4725).

Phase Two: Working with a student teacher

- **February 2008:** Co-teaching Seminar for all co-teachers (sub cover provided). This day long seminar provides the researcher with an opportunity to detail the next phase of the research, to explain the rational and models of coteaching, to set up the co-teachingpartnerships and to begin the co-teaching planning process. (Probable date: Monday February 4th 2008) preliminary feedback will be provided on the information gathered in the first interview process.
- **February, March, April 2008:** Eight co-teaching sessions, spread over 10 weeks (each session one and a half hours to two hours includes evaluation and planning).
- Co-teachers jointly complete a planning and evaluation grid for each session.
- **Evaluation session:** One evaluation session to be audio-taped by participants
- **Observation:** The research will observe one co-teaching session by arrangement with the coteachers.
- **Interviews:** One audio-taped during co-teaching and one at the end of coteaching.

Transcripts of the interviews will be provided to the participants to ensure that they are accurate in detail and spirit.

Data generated by the research, (i.e. interview transcripts, planning and evaluation grids, the audio-taped evaluation session and observation notes) will be used by the researcher for academic purposes, namely to complete a doctoral thesis and attendant academic publications. Data will be stored securely and no-one other than research colleagues, supervisors or examiners will have access to any of the data collected.

All necessary steps will be taken to protect the privacy and ensure the anonymity and non-traceability of the participants – e.g. by the use of pseudonyms, for both individuals and schools, in any written reports of the research and other forms of dissemination.

Participation in this research is voluntary. You may withdraw for any or no reason from the research at any point without prejudice.

It is envisaged that participation in this research will contribute to the participants' continuing professional development.

A summary of the research findings will be made available to the participants.

I may be contacted at any stage during the process to answer any queries relating to any aspect of the research.

The participants may contact the Research Ethics Coordinator of the School of Education, University of Nottingham or the research supervisor, if they wish to make a complaint relating to their involvement in the research.

The school Principal has been given a copy of this Information Sheet.

I understand the nature and purpose of this research, my role in it and am willing to become involved.

Signed: _____ Date: _____.
(participant)

Signed: _____ Date: _____.
(researcher)

Contact Details:

Researcher
Neil Ó Conaill,

[Redacted contact details]

[Redacted contact details]

neil.oconaill@mic.ul.ie

Supervisors
Dr. Roger Firth,
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Research Information Sheet (Peripheral Participants)

Co-teaching: Researching Teachers' Learning

Researcher: Neil Ó Conaill, [REDACTED]

What the research is about:

This research is concerned with teachers' professional knowledge and the Central to all teacher education programmes is the practicum element, the opportunity for student teachers to practice teaching. This element of the programme can be organised in different ways and this research sets out to examine the outcome of a co-teaching placement on the professional knowledge of the teacher and the student teacher and the socialisation of preservice teachers into teaching. It explores what can be gained by the student teacher and the class teacher from 'teaching at the elbow of another' as compared to the traditional approach of placing the student in the teacher's class and teaching on their own. It examines the contribution class teachers can make to preservice teachers learning in a co-teaching context and also examines how co-teaching benefits the experienced teacher.

Purpose of the research:

This research is conducted in part completion of a doctoral degree.

As part of this research the class teacher in whose class you are based for the [REDACTED] will be interviewed. The interview will focus on the level of interaction between the class teacher and you, the student, the perception of their role during the placement, the level and nature of support offered to the student during the placement and how the participant benefitted from the student teacher's presence in the classroom. It seeks to address the planned and chance learning encounters experienced during the placement. This interview will be audio-taped and will take place as soon possible after the student placement finishes at a mutually convenient time. The student teacher on placement in the participant's classroom does not participate in the research in any form, though their consent for the class teacher to be interviewed will be sought. As a Faculty member in [REDACTED], I will have no role in assessing these student on their teaching practice [REDACTED]. The student will have no further role in the research.

Data generated by the research, (i.e. interview transcripts, planning and evaluation grids, the audio-taped evaluation session and observation notes) will be used by the researcher for academic purposes, namely to complete a doctoral thesis and attendant academic publications. Data will be stored securely and no-one other than research colleagues, supervisors or examiners will have access to any of the data collected.

All necessary steps will be taken to protect the privacy and ensure the anonymity and non-traceability of the participants – e.g. by the use of pseudonyms, for both individuals and schools, in any written reports of the research and other forms of dissemination.

Participation in this research is voluntary. You may withdraw for any or no reason from the research at any point without prejudice.

I may be contacted at any stage during the process to answer any queries relating to any aspect of the research.

The participants may contact the Research Ethics Coordinator of the School of Education, University of Nottingham or the research supervisor, if they wish to make a complaint relating to their involvement in the research.

The school Principal has been given a copy of this Information Sheet.

I understand the nature and purpose of this research, my role in it and am willing to become involved.

Signed: _____ Date _____.
(participant)

Signed: _____ Date: _____.
(researcher)

Contact Details:

Researcher
Neil Ó Conaill,



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Appendix 2 : Excerpt from Excerpt Research Log

Log from Research Journal – recruitment of participants

Thursday 25th Oct.

- Met [REDACTED], principal, School A – met Teacher A ; v. positive left docs. Will contact [REDACTED] Week 9.

Friday 26th Oct.

- Met principal, School B and Teacher B; v. positive – left forms. [REDACTED] has background with induction programme.
- Met principal School C. Spoke highly of Teacher C. I will ring back Nov. 7th to arrange meeting with [REDACTED].
- Met principal in school D. Ring Mon. 5th to arrange meeting with Teacher D. Left docs with [REDACTED]
- Spoke with principal school E. Ring school on 5th to arrange meeting with Teacher E.

Monday 30th Oct 2007-10-30

Meet with five students in my office. Talked through Information Sheet and Consent Forms. Will provide SAE for return of same.

Asked about detail of first interview. Told them I'd e-mail list of topics to be covered.

October 31st met with HOD [REDACTED] to brief her on proposal. Suggested I should inform [REDACTED] as A/Director of TP. Also to consider how to create profiles of teachers before co-teaching.

Nov. 2nd Student F and Student G e-mailed to say they'd like to participate in study. Sent them documents. Also Student H. .

Nov. 5th meeting with principal School F. (9.15) and Teacher F. [REDACTED] – very positive. Left docs with her.

Mon. 5th Rang School G and School H for appointments with Principals. [REDACTED]
[REDACTED] 11.30 Tuesday 6th Nov. 11.30

Consent forms returned from: five students.

Tuesday 6th Nov.

- Meet [REDACTED] – left docs – asked to return by end of next week
- Met [REDACTED] – left docs – asked to return by end of next week

Wed 7th meet [REDACTED] – Left forms – will return end of next week; [REDACTED] – has forms signed – told her to keep them and think about it.

Wed 7th Nov. 2007 E-mailed consent forms to [REDACTED]

Mon. 12th Nov.

Consent forms returned from [REDACTED] (teacher) [REDACTED]
[REDACTED] (teacher) [REDACTED]

Met with [REDACTED] – optimistic about participation – left forms

Tuesday 13 Nov. 2007

Sent explanatory letters and consent forms to peripheral teachers [REDACTED]
[REDACTED]). Included
SAE for return of consent form.

E-mailed [REDACTED] and [REDACTED] to say letters sent.

E-mailed [REDACTED] to ask for return of forms by
Tuesday 20th Nov. to assist with planning co-teaching placements.

Friday 16th

Teacher participation consent forms returned from
[REDACTED] (total of 4)

Peripheral consent from [REDACTED] teacher)

[REDACTED] e-mailed to confirm his participation

Mon. 19th Nov.

Met [REDACTED] – will participate)
Consent forms returned from [REDACTED]

Monday 26th Nov.

Consent form returned from [REDACTED], teacher [REDACTED]
[REDACTED], teacher, [REDACTED] declines to participate citing other extra
curricular commitments

Peripheral teacher consent for student interviews :

[REDACTED]

Sent letters of consent to Peripheral teachers [REDACTED] (returned
29th Nov [REDACTED]

Consent forms returned from [REDACTED] and [REDACTED]

Letters to peripheral students [REDACTED]
[REDACTED]

Nov. 29th letters to peripheral students [REDACTED]
[REDACTED]

Nov. 29th

Consent form returned from [REDACTED]

Sent peripheral consent form to his teacher – [REDACTED]

Dec 8th

Letter with Phase 1 interview themes and seeking date for interview sent to [REDACTED]
[REDACTED]. (Also e-mailed to [REDACTED]
[REDACTED])

Dec. 10th Conducted Phase 1 interview with [REDACTED]

Dec 11th Interview with [REDACTED]

Dec. 12 Interview with [REDACTED]

Dec 13th interview with [REDACTED]

Dec 13th Met with [REDACTED] – returned forms Thursday 20th

Appendix 3 Research ethics proposal

SCHOOL OF EDUCATION – STATEMENT OF RESEARCH ETHICS

Name (Student): Neil Ó Conaill

Supervisors: Dr. Roger Firth Tony Fisher



The University of
Nottingham

Course of Study: EdD Teacher education

Title of Research Project: Coteaching: Researching Teachers' Learning

	Tick where appropriate
1. I have read and discussed with my supervisor(s) the British Educational Research Association's <i>Revised Ethical Guidelines for Educational Research</i> (BERA, 2004).	X
2. I have read and discussed with my supervisor(s) the <i>Research Code of Conduct</i> of the University of Nottingham: http://www.nottingham.ac.uk/rso/policy/code_of_conduct.doc .	X
3. I am aware of and have discussed with my supervisor(s) the relevant sections of the <i>Data Protection Act</i> (1998): http://www.hms.gov.uk/acts/acts1998/19980029.htm .	X
4. Data gathering activities involving schools and other organizations will be carried out only with the agreement of the head of school/organization, or an authorised representative, and after adequate notice has been given.	X
5. The purpose and procedures of the research, and the potential benefits and costs of participating (e.g. the amount of their time involved), will be fully explained to prospective research participants at the outset (see BERA, 2004, paras 10, 11, 12, 21).	X
6. My full identity will be revealed to potential participants.	X
7. Prospective participants will be informed that data collected will be treated in the strictest confidence and will only be reported in anonymised form, but that I will be forced to consider disclosure of certain information where there are strong grounds for believing that not doing so will result in harm to research participants or others, or (the continuation of) illegal activity (see BERA, 2004, paras 27-28).	X
8. All potential participants will be asked to give their explicit, normally written consent to participating in the research, and, where consent is given, separate copies of this will be retained by both researcher and participant.	X
9. In addition to the consent of the individuals concerned, the signed consent of a parent, guardian or 'responsible other' will be required to sanction the participation of minors (i.e. persons under 16 years of age) or those whose 'intellectual capability or other vulnerable circumstance may limit the extent to which they can be expected to understand or agree voluntarily to undertake their role' (BERA, 2004, para 14-16).	NA
10. Undue pressure will not be placed on individuals or institutions to participate in research activities.	X
11. The treatment of potential research participants will in no way be prejudiced if they choose not to participate in the project.	X
12. I will provide participants with my contact details (and those of my supervisor), in order that they are able to make contact in relation to any aspect of the research, should they wish to do so.	X
13. Participants will be made aware that they may freely withdraw from the project at any time without risk or prejudice (see BERA, 2004, para 13).	X
14. Research will be carried out with regard for mutually convenient times and negotiated in a way that seeks to minimise disruption to schedules and burdens on participants (see BERA, 2004, para 19).	X
15. At all times during the conduct of the research I will behave in an appropriate, professional manner and take steps to ensure that neither myself nor research participants are placed at risk.	X
16. The dignity and interests of research participants will be respected at all times, and steps will be taken to ensure that no harm will result from participating in the research (see BERA, 2004, para 18).	X
17. The views of all participants in the research will be respected.	X
18. Special efforts will be made to be sensitive to differences relating to age, culture, disability, race, sex, religion and sexual orientation, amongst research participants, when planning, conducting and reporting on the research.	X
19. Data generated by the research (e.g. transcripts of research interviews) will be kept in a safe and secure location and will be used purely for the purposes of the research project (including dissemination of findings). No-one other than research colleagues, supervisors or examiners will have access to any of the data collected.	X
20. Research participants will have the right of access to any data kept on them (see BERA, 2004, para 24).	X
21. All necessary steps will be taken to protect the privacy and ensure the anonymity and non-traceability of participants – e.g. by the use of pseudonyms, for both individual and institutional participants, in any written reports of the research and other forms of dissemination.	X
22. Where possible, research participants will be provided with a summary of research findings and an opportunity for debriefing after taking part in the research (BERA, 2004, para 29).	X

Please provide further information below in relation to any of the above statements which you have not been able to tick, explaining in each case why the suggested course of action is not appropriate (continue on a separate sheet if necessary):

Point 9.: All participants are aged over 18 and can provide fully informed consent.

Please outline any areas of risk, which have not been referred to above, associated with your research, and how you intend to deal with these (continue on a separate sheet if necessary):

No additional areas of risk.

Checklist:

Please check that you have attached the following and return with the form to the Postgraduate Research Students Office

- | | |
|---|-------------------------------------|
| (1) a brief statement of my research aims or questions and proposed methods of data generation (maximum 200 words); | ☒ |
| (2) a brief statement of how I plan to gain access to prospective research participants; | ☒ |
| (3) a draft information sheet to be provided to prospective participants; | ☒ |
| (4) a draft consent form to be used with prospective participants. | ☒ |

NB Please do NOT include copies of research instruments (e.g. questionnaires).

Signed (student)	_____	Print Name (Student)	___Neil Ó Conaill___	Date	15 th Feb. 2008
Signed (supervisor 1)	_____	Print Name (supervisor 1)	_____	Date	_____
Signed (supervisor 2)	_____	Print Name (supervisor 2)	_____	Date	_____

A brief statement of my research aims or questions and proposed methods of data generation

Central to all teacher education programmes is the practicum element, the opportunity for student teachers to practice teaching. This element of the programme can be organised in different ways and this research sets out to examine the outcome of a coteaching placement on the professional knowledge of the teacher and the student teacher and the socialisation of preservice teachers into teaching. It explores what can be gained by the student teacher and the class teacher from 'teaching at the elbow of another' as compared to the traditional approach of placing the student in the teacher's class and teaching on their own. It examines the contribution class teachers can make to preservice teachers learning in a coteaching context and also examines how coteaching benefits the experienced teacher.

Data will be collected by means of:

- o Three audio recorded semi-structured interviews with each participant conducted by the researcher
- o Each coteaching partnership audio record one of their evaluation sessions
- o Each coteaching partnership is observed coteaching by the researcher once by arrangement
- o Each participant completes planning and evaluation documents for the researcher
- o Each participant completes a summative evaluation for the researcher

Access to the participants

- o Student teachers volunteered for the research following attendance at an information seminar
- o Principal teachers were approached for permission to involve class teachers in the research. Where that we forthcoming details of the research were explained to the class teachers.

PLEASE RETURN THIS FORM WITH SUPPORTING DOCUMENTATION TO THE POSTGRADUATE RESEARCH DEGREES OFFICE (A77)

Appendix 4: Weekly Vignette Ned

Narrative

Today's co-teaching session was based on the flying helicopters. This lesson followed on nicely from the 'exploding canisters' where flying was in any upwards movement. The lesson enabled all children to participate in discovery learning during the investigate section of the lesson. [REDACTED] and I circulated during this phase of the lesson.

Critique

Following the discussion and demonstration phases the children were told the correct procedure for cutting out the helicopters. The children were given a range of sizes for each group. The children were left to do their own 'discovery learning'. While circulating I noticed from the groups a considerable amount of talk. While the children were experimenting and recording their findings I noticed how group members were giving various rationales for further enquiry. It was interesting to hear the language of persuasion as group members encouraged ideas for enquiry. This talk echoed a reading from earlier in the semester where it was suggested that "talk helps children to construct their understanding of science" and also Douglas Barnes idea that "the readiest way of making an understanding is often through talk, because the flexibility of speech makes it easy for us to try out new ways of arranging what we know". Furthering Douglas Barnes point I would suggest that speech makes it easy for us or at least helps us to articulate what we would like to know and what procedures we must engage with to further our knowledge and satisfy our enquiry.

Most ideas for further investigation were based on comparison – manipulation of one helicopter measured against a standard. These manipulations took the form of

- adding additional weight
- varying the weights themselves (blutak or paper clips)
- varying the location of the weights along the helicopter shaft
- cutting measured lengths off the shaft
- varying the drop heights

One more advanced group dropped an un-weighted helicopter first and let a few seconds elapse before releasing a weighted helicopter of same size to see if the weighted helicopter would “catch up”. In this lesson the children were supervised but direction was kept to a minimum. This lack of teacher dictation of tasks and task sequence, I believe, led to greater pupil enjoyment of the task and led children to a greater understanding of force and the relationships it has with mass and weight of an object.

From a learning to teach viewpoint it was very informing to see discovery learning in action. While we made efforts over the previous lessons to let the children investigate and answer some of their own questions our efforts did not reap rewards the magnitude of today’s lesson. The organisation and direction for today’s lesson was minimal – groups were selected and materials were handed out.

However, I did have one distinct difficulty with this approach. There was a lack of material for drawing comparison. As each group decided what they would investigate there was a lack of findings for class analysis and pattern seeking. Over the past few weeks these skills have been integral to the lessons but I felt that this methodology did not afford these skills due attention. Whole class analysis, I found, helped to further understandings of concepts and enabled children to confirm or ask questions about a particular topic.

Metacognition

While reflection is a course requirement it also helps and directs to no small extent what approaches I would consider using for the remainder of co-teaching or for my teaching career. Reflection also enables me to think about approaches I found valuable or approaches I found need honing before I would be satisfied to use them again. The “discovery learning” of today’s lesson while very beneficial needs to be reworked so as to include a class friendly facet. While group work is a valuable contributor to children’s learning, I believe that group discovery learning must have a feature that enables findings to be transferred for whole class benefit.

I will consider how best learnings gleaned from group work can be shared to maximise the benefit for whole class learning.

Appendix 5

Lesson Evaluation – Students

Complete these individually after each lesson

In answering these questions refer as much as possible to how co-teaching is contributing to your learning, how co-teaching is different to previous teaching experience and how the feedback/evaluation session is different to previous experiences (e.g. with the student on TP). Be as specific as possible but where no authentic response is appropriate do not feel obliged to provide an answer.

- 1. Brief overview of lesson with a description of the teaching approaches used**
- 2. How were the co-teaching roles divided ?**
- 3. Comment on your relationship with your coteacher**

- 4. What are you learning about**
 - 4.1 general teaching procedures ?**
 - 4.2 classroom management strategies ?**
 - 4.3 science teaching strategies ?**
- 5. Comment on teaching of process skills in today's lesson**
- 6. Comment on the use of 'talk strategies' in today's lesson**
- 7. What did you like most about today's session ?**
- 8. What did you like least about it ? How will you seek to improve it ?**

Co-teaching Feedback

- 9. What advice did you seek from your coteacher ? What advice was offered by your coteacher ?**
- 10. What did you learn from your coteacher today ?**
- 11. How did you contribute to your coteacher's learning today ?**
- 12. What was the advantage in co-teaching today's lesson? Was there a disadvantage ?**

- 13. What is your 'co-teaching dynamic' focus for the next lesson ?**
- 14. What is your 'leaning to teach' focus for the next lesson?**

Appendix 6 Planning Template

Session: Date : Topic: Co-teachers:

Planning Template Lesson Planner: The Five Part Lesson

Pupils' learning		
Strand and Strand unit	Knowledge	Skill
Teachers' learning		
Possible Focus Planning ○ Objectives ○ Activity ○ Consolidation Elicitation strategies Teacher presentation ○ Pacing ○ Challenge ○ Consolidation Lesson management and org. Working Scientifically Talk strategies Assessment	Comment	

Session: Date: Topic:

Roles		
Lesson Part	Teacher A	
1. Engage		
2. Demonstration/Discu		

ssion/ Exploration		
3. Planning Investigation		
4. Investigating		
5. Plenary and review		

Coteachers:

Evaluation template to be completed jointly

Lesson Part	Positive	Con
1. Opening Discussion		
2. Demonstration/Discussion/Exploration		
3. Planning Investigation		
4. Investigating		

5. Plenary and Review		
------------------------------	--	--

***Working Scientifically* skills practised in this lesson:**
Key learning point

Planning Science Lessons

Key Points to Consider

Can the objectives realistically be achieved in this lesson ?

Are the science concepts clear ?

Is there a focus on specific process skills ?

Does the ‘investigation sheet’ have a clear skills focus ?

Is the lesson framed in a context relevant and appropriate to the pupils ?

How is the topic linked with pupils’ previous work ?

Is the pupils’ prior knowledge elicited and recorded ?

Are the ‘talk science’ strategies in the plan ?

Is the group work planned ?

Are group work roles clearly defined ?

Is the ‘investigation sheet’ easily understood and completed ?

Are the coteachers roles clearly defined ?

Have you planned transitions signals and overlaps ?

Is key scientific language highlighted ?

Are resources available and organized ?

Are different ability levels catered for ?

Does the plan cover recording and assessment of pupils’ learning ?

Appendix 7

Notes on writing vignettes:

A vignette can assist the practitioner :

- To focus on incidents of personal importance occurring during teaching
- To illustrating the integration of theory and practise of teaching
- To Emphasise the personal understanding of experience
- To describe and analyse the incident in terms of understanding, feelings and actions
- To clarify the implications of the incident for professional learning

A vignette can focus on

- teaching: specific or general issues
- self as teacher: skills, approach, satisfaction
- pupils: behaviour, response, understanding
- co-teaching: dynamic between co-teachers; transitions; reciprocal learning – learning from each other

Matching theory to practice (c.f. teaching principles doc.)

Science skills (c.f. science process skills doc.)

Effective vignettes:

- **Present a short, continuous, self-contained episode in a lesson rather than provide a narrative that covers events over a whole lesson or programme;**
- **Focus on a challenging teaching task, or address an ‘easier’ task but through a strategy that is uncommon, powerful and creative;**
- **Use dialogue that is realistic and indicative of the teacher’s expertise;**
- **Tell the story from the teacher’s point of view; make the teacher a central character, and show what it means to think like a teacher;**
- **Focused more on what students said and did, as evidence of teacher expertise, than on the detail of what the teacher said and did to help students**
- **Show rather than tell what the teacher does**
- **Provide rationale for teachers’ decisions and actions**

March 12th 2008