TEACHING OUTDOOR AND ADVENTURE ACTIVITIES: DESCRIBING ANALYSING AND UNDERSTANDING A PRIMARY SCHOOL PHYSICAL EDUCATION PROFESSIONAL DEVELOPMENT PROGRAMME

By

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Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Philosophy is entirely my own work, that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

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Abstract

Background: Primary schools need well informed and highly motivated teachers to meet the evolving demands of the education system. Professional development is essential to equip primary school teachers to change practice to meet these challenges (Guskey, 2003; Villegas-Reimers, 2003). The purpose of this study was to describe, analyse and understand teachers' and children's experiences of a contextualised, whole school professional development programme (PDP) in primary physical education.

Research Design: A case study methodology was employed informed by social constructivist theory. The study was broken into four phases. Phase one described the case and provided an in-depth professional development needs analysis of the teachers. Phase two resulted in the development of a school specific, contextualised PDP on Outdoor and Adventure Activities. This programme was based on features of effective professional development (e.g. Armour & Duncombe, 2004; Desimone, 2009; Garet et al, 2001; Guskey, 2002; 2003; O' Sullivan & Deglau, 2006; Wayne et al., 2008) and was informed by professional development instructional models (Caffarella, 2002; Collins et al, 1991; Joyce & Showers, 1988; Maldonado, 2002). Phase three was the implementation of stage 1 of the PDP, this phase included a process evaluation. Phase four involved stage 2 of the PDP, where the teachers taught the O&AA unit with less intense support. It included both process and impact evaluation of the PDP. Teachers were supported for one hour during their timetabled physical education lesson each week for six weeks during stage 1 and again at stage 2. Further support was provided when requested by teachers outside of these times.

Methods: The research methods selected were primarily qualitative due to the exploratory nature of the study however quantitative methods were used in order to provide a more generalist picture when relevant. This mixed methods approach allowed for i) an in-depth understanding of the research environment and ii) a full analysis of how the PDP was impacting primarily on the teachers, but also on the children. The methods of data collection employed were specific to the research questions in each phase and included questionnaires, physical health and fitness measurements, focus-group discussions, semi-structured interviews, field notes, lesson evaluations and systematic observations of teachers and children.

Analysis: All quantitative data were analysed using SPSS for Windows, version 14.0. Data were presented descriptively as means, standard deviations and percentages and where appropriate gender- and age-specific means and standard deviations were calculated. The Pearson, chi-square statistics with standard residuals was used to investigate any categorical relationships in the data. Paired sample t-tests, or Mann-Whitney U tests were conducted to compare differences. All qualitative data were coded and categorised using constant comparative technique, facilitating the identification of similarities and differences, the grouping of data into categories and the development of propositional statements.

Findings: A single, suburban mixed gender primary school [Principal, teachers: N=28 (year 1), N=27 (year 2) and pupils: N=780 (year 1), N=800 (year 2)] participated in the study. Prior to the PDP the teachers taught a narrow programme of physical education using direct teaching styles. Teachers reported lacking content knowledge and confidence in teaching O&AA (pedagogical content knowledge). Children, prior to the PDP, enjoyed physical education and expected lessons to include moderate to vigorous levels of physical activity. They met normative standards for physical fitness for their age and gender. However, they described their physical education experiences as predominantly 'games' and recreational rather than educational. Both the teachers and the children had a confused understanding of physical education with discourses focussing on health and physical activity.

Following implementation of the PDP the findings indicated that for the PDP to be effective and change to occur key features were necessary (described using the developed propositional statements). These were: a) The teachers reported that the provision of resources

played a strong role in the adoption of the PDP; b) The support provided by an external expert through modelling lessons, explaining activities and providing feedback impacted positively on teachers' teaching; c) The support allowed teachers to build on their content knowledge and they gained confidence to use already developed classroom pedagogical strategies in the physical education context; d) Organisational changes within the school, such as timetabling and access to equipment, were necessary for the PDP to be successful: e) The PDP impacted positively on children's perceived learning and engagement in physical education lessons; f) Both teachers and children began to re-conceptualise physical education, from a games orientated, recreationally focused subject towards an understanding of physical education as a subject where teaching and learning happened; g) Collegiality and collaboration amongst teachers in physical education, and in other subjects, was an outcome of the PDP and was an important change strategy.

Conclusion: This research confirms the importance of resource provision, contextualised and individualised support to develop teachers' content and pedagogical content knowledge in the design of a PDP. It also provides evidence of the teachers themselves being an important resource and the need for future professional development to incorporate opportunities to facilitate communication and collaboration and formalise communities of practice. Teacher change is underpinned by the features of the PDP and the research indicates that change is multi-directional. Although the literature highlights the necessity to focus on the learning outcomes of the child in designing PDPs, it is imperative that we do not ignore the learning outcomes of teachers. If there is no teacher learning, this could potentially limit children's learning.

Glossary of Terms and Abbreviations

Primary - elementary or first level school for children aged 4-12

Secondary - second level school for children aged 12-18

Junior Infants - year one in school

Senior Infants - year two in school

First Class - year three in school

Second Class - year four in school

Third Class - year five in school

Fourth Class - year six in school

Fifth Class - year seven in school

Sixth Class - year eight in school

Junior School - Year one through four

Senior School - Year five through eight

DES - Department of Education and Skills

PCSP - Primary Curriculum Support Service

RCSS - Regional Curriculum Support Service

PDST - Professional Development Service for Teachers

INTO - Irish National Teachers' Organisation

PSSI - Primary School, Sports Initiative

ITE - Initial Teacher Education

ESRI – Economic and Social Research Institute

NCCA - National Council for Curriculum and Assessment

O&AA - Outdoor and Adventure Activities (from Irish Primary Curriculum)

OAA - Outdoor Adventurous Activities (from UK Curriculum – Key Stage 2-4)

OE - Outdoor Education

AE - Adventure Education

Curaclam na Bunscoile - Curriculum of the Primary School (1971 edition)

Concurrent ITE - Students study an academic subject or subjects at the same time as gaining a teaching qualification

Consecutive ITE - Students take a course in pedagogy subsequent to an initial qualification in a teaching subject or subject

NQT - newly qualified teacher

Publications and Presentations

Refereed Journal Articles

(Appendix A)

Coulter, M., and Woods, C., (2011), An exploration of children's perceptions and enjoyment of school-based physical activity and physical education. Journal of Physical Activity and Health. 8: 645-654

Coulter, M., and Woods, C., (2012), Primary teachers' experience of a physical education professional development programme. Irish Educational Studies. (31) 3: 329-343

Refereed Abstracts

(Appendix B)

Coulter M., and Woods, C., (2010), Teachers' and children's experiences of a physical education professional development programme (PE-PDP). Australian Association for Research in Education (AARE), University of Melbourne, November 2010. (Oral Presentation)

Coulter M., and Woods, C., (2010), Back to basics: It's what you know (or don't), AIESEP World Congress, La Coruna, Spain, October, 2010. (Oral Presentation – ***Young Scholar Award***)

Coulter M., and Woods, C., (2010), Can a contextualised, sustained programme of professional development for the generalist primary teacher in physical education work? British Educational Research Association, University of Warwick, United Kingdom, September 1st-4th, 2010. (Oral Presentation)

Coulter M., and Woods, C., (2008), Primary school children: Physical activity and physical education. AfPE, National PESS Conference, Cheshire, July 2nd 4th. (Poster Presentation)

Coulter M., and Woods, C., (2008), Children's enjoyment of physical activity and physical education. PE PAYS Research Forum, University of Limerick, June 12th-13th. (Oral Presentation)

Coulter M., and Woods, C., (2008), Primary Physical Education-An Irish Case Study. AIESEP World Congress, Sapporo, Japan, January. (Oral Presentation)

McGreevy, F., **Coulter, M.,** and Woods C., (2008), An examination of free-play physical activity levels of boys and girls in Irish primary schools playgrounds. AIESEP World Congress, Sapporo, Japan, January. (Poster Presentation- ***First Prize***)

Ní Bhrian, C., **Coulter, M.,** and Woods C., (2008), An examination of activity levels of Primary school pupils during a physical education specialist taught outdoor and adventure strand of the Irish physical education curriculum. AIESEP World Congress, Sapporo, Japan, January. (Poster Presentation)

Coulter M., and Woods, C.,(2007) Primary teachers' practices and perspectives in Physical Education prior to an intervention to support them in their teaching of PE – A Case Study. PE PAYS Research Forum, University of Limerick June 14th-15th. (Oral Presentation)

Emerson, Y., O' Donoghue, C., Ní Bhrian, C., McGreevy, F., McGinn, V., Tuite, O., **Coulter, M.,** and Woods C., (2007), A study of selected components of health related physical fitness in Irish primary school children. PE PAYS Research Forum, University of Limerick June 14th-15th. (Poster Presentation)

McGreevy, F., McGinn, V., Tuite, O., Ní Bhrian, C., Emerson, Y., O' Donoghue, C., **Coulter, M.,** and Woods C., (2007), An examination of free-play physical activity levels of boys and girls in Irish primary schools playgrounds. PE PAYS Research Forum, University of Limerick June 14th-15th. (Poster Presentation)

Ní Bhrian, C., McGreevy, F., McGinn, V., Tuite, O., Emerson, Y., O' Donoghue, C., **Coulter, M.,** and Woods C., (2007), An examination of activity levels of Primary school pupils during a physical education specialist taught outdoor and adventure strand of the Irish physical education curriculum. PE PAYS Research Forum, University of Limerick June 14th-15th. (Poster Presentation)

Coulter M., and Woods, C., (2006) Be Active, Learn and Have Fun – Primary Physical Education – Research Project. PE PAYS Research Forum, University of Limerick, June 15th-16th. (Round Table Discussion)

Reviewed Conference Proceedings

(Appendix C)

Coulter, M., and Woods, C., (2008), Children's perceptions and enjoyment of physical activity and physical education. Proceedings of the Third PE PAYS Forum. Engaging Young People in Physical Activity and Youth Sport. University of Limerick.

Coulter, M., and Woods, C., (2007), 'It's all about out of the classroom' Classroom teachers' on teaching physical education. Proceedings of the Second PE PAYS Forum. Evidence-based Research in Physical Education, Physical Activity and Youth Sport. University of Limerick.

Ní Bhrian C., **Coulter, M**., and Woods, C., (2007), An examination of activity levels of Primary school pupils during a physical education specialist taught outdoor and adventure strand of the Irish physical education curriculum. Proceedings of the Second PE PAYS Forum. Evidence-based Research in Physical Education, Physical Activity and Youth Sport. University of Limerick.

Chapter One: Introduction

Teachers today face the complex demands of different languages and student backgrounds, culture and gender issues, disadvantage, disability, learning and behavioural problems, new technologies, developing knowledge and student assessment, and ultimately these demands require changes in classroom practices (Organisation for Economic Co-operation and Development, 2005). Excellent teaching is rare, according to Schulman, because, 'after some 30 years of doing such work, I have concluded that classroom teaching … is perhaps the most complex, most challenging, and most demanding, subtle, nuanced and frightening activity that our species ever invented' (2004, p. 504). Yet, teachers are constantly being asked to teach to high standards in this rapidly changing world, and to ensure that they are up-to-date on all educational reform and policy. 'Education has indisputably taken a prominent place on the political agenda, and, in many countries, educational reform has become characterised by a top down approach, an extensive reform agenda, and a rapid implementation schedule' (Calderhead, 2001, p. 778). According to Ward and Doutis (1999) reform has become 'a catch-all term that includes a variety of initiatives from home-grown changes to national standards and curricula' (p. 382). Educational reform happens on a continuum from teacher initiated practice to systematic changes mandated by government. The mechanism by which reform happens is professional development (Fullan & Hargreaves, 1992).

Reforms have at their centre, aspirations towards 'more ambitious student outcomes' (Warren Little, 1993, p. 130). With the implementation of the Primary Curriculum in Ireland (Government of Ireland, 1999a), generalist teachers were expected to deal with these demands across a number of subject areas. The response by teachers to curricular reform, whether positive or negative, is known as teacher change. These reforms are a departure from teachers' usual practices, established beliefs and prior experiences and therefore require teachers to change. This piece of research was undertaken in a climate of government imposed professional development, whereby teachers were undertaking consecutive and concurrent phases of national in-service, and curricular reform in the twelve subjects of the curriculum between 1999 and 2007. The Primary Curriculum (Government of Ireland, 1999a) recognises the fact that teachers need to 'adopt innovative approaches to teaching and to be aware of changes and developments in educational theory and practice' (p. 21) and the curriculum also points

to the role of the teacher as one where the teacher is, 'committed to a process of continuing professional reflection, development and renewal' (p. 21). At the time of this research teachers were challenged in dealing with the implementation of new curricula, with negotiating a number of professional development initiatives and with school related policy development.

Reform is not just a feature of Irish education but a world-wide occurrence which is leading to an intensification of teachers' workloads in an ever-expanding curriculum (Gleeson & Ó Donnabháin, 2009). In the past twenty five years the Irish education system has undergone major government legislation, policy and curricular reform. This has occurred at a number of levels; curricular reform, professional development reform, special educational needs reform, increased accountability at teacher education level and in schools and also an increase in parental involvement in their children's education (Egan, 2004). 'These major reform initiatives have placed the responsibility on teachers to develop their capacity to be lifelong adaptive learners' (Conway, Murphy, Rath & Hall, 2009, p. 175). It is essential that teachers are equipped to meet the challenges of these reforms and are encouraged to do so through professional development. Despite its recognised importance in facilitating change, professional development provision has been described as 'woefully inadequate' (Borko, 2004, p. 3). Although, in Ireland, teachers report positive experiences from professional development activities they undertake, their impact on changing practices has been questioned (Sugrue, 2002) and their fragmented provision and their lack of learner centred structures debated (Coolahan, 2003; Sugrue, Morgan, Devine & Raferty, 2001; Sugrue, 2002). Other trends identified in Irish research studies on continuing professional development (CPD) are the dominance of transmission rather than reflective mode, lack of co-ordination structures, limited opportunities for observation of teaching, and the dominance of the one shot knowledge transfer model of CPD provision with limited opportunity for reading and critical engagement with theory (Conway et al., 2009). High quality professional development programmes can help teachers deepen their knowledge and transform their teaching (Borko, 2004).

In Ireland, recent curricular reform followed a consultative approach with all stakeholders involved in curriculum design. Teachers were involved in designing and delivery of the national in-service following the curriculum's publication. Although consultation occurred with all stakeholders, including teachers, a national framework to implement this reform and support the change needed is still in the planning stages.

Even though autocratic, this in turn creates its own problems, the largest of which is slow progress. Sustained and adequate funding has also been an issue; whereby even with a national framework, without the adequate resources, any change will be slow to happen.

Few understand that primary education is an area, 'shaped by extraordinarily complex understandings, beliefs and cultures' (O' Connell Rust, 2009, p. 333). Primary teachers have been resistant to changes imposed by successive governments over the past thirty years because in some instances they do not reflect the ways in which the subjects were previously taught. Change is difficult in an environment that seems familiar to all (Sugrue, 2004). Managing effective curriculum change involves 'critical decisions in the selection of starting points and appropriate areas for development and renewal' (Government of Ireland, 1999a) and it involves change in 'what people know and assume' (p. 62). This is similar to Fullan's (2001) statement that change in schools depends on 'what the teachers do and think' (p. 115). Teachers often oppose change because of the perception of a constant overload imposed by national reforms and improvement projects that compete for the teachers' time and attention as well as limited resources (Schmidt & Datnow, 2005).

In the case of generalist primary school teachers, they teach a group of children in their own classroom all day, every day with little or no communication with other teachers. The relatively private nature of teachers' work behind the classroom door was noted by the Organisation for Economic Co-operation and Development (OECD) (1991) when they viewed Irish education, and they termed it, 'the legendary autonomy' of the Irish teacher. A number of researchers have written about this teacher isolation and how it can diminish teachers' opportunities for teachers' collegiality around learning and teacher development (Lieberman & Miller, 2001; Lortie, 1975). Professional development programmes need to consider how they can reduce isolation of teachers and encourage collective participation (Desimone, 2009). Teachers may find that learning in their own environment with colleagues can be more effective than external, decontextualised professional development. Such arrangements allow for potential interaction and discourse which can be a powerful form of teacher learning (Desimone, 2009; Fullan, 1991; Guskey, 2004). Despite the best efforts of school principals to promote collegial cultures, these tend to remain at planning or talking about teaching level, rather than examining practice (Day & Sachs, 2004).

Prior to the publication of the Primary School Curriculum (Government of Ireland, 1999a), the Department of Education and Science (re-established as the Department of Education and Skills in 2010) established the Primary Curriculum Support Programme (PCSP) in 1998, to provide and oversee a national in-service programme for teachers implementing the curriculum. The purpose of the PCSP was to 'mediate the Primary School Curriculum for teachers towards enabling them to implement it in their schools' (Primary Curriculum Support Programme, 2007, para.1). The Physical Education Curriculum (Government of Ireland, 1999b) in-service programme was implemented between the years 2004-2006. This national in-service consisted of two days facilitated workshops and one day in-school planning each year. Since 1999, teachers may have participated in other in-service programmes in physical education or related areas such as dance or Gaelic games. These in-service programmes were facilitated by teachers under the auspices of the Irish National Teachers Organisation (INTO) or through Education Centres[1]. National Governing Bodies and other organisations such as the Irish Heart Foundation also delivered courses which were seen to supplement the physical education curriculum. Following national in-service, all schools were required to implement the physical education curriculum from September 2006, seven years after its publication. In 2006, the Regional Curriculum Support Service (RCSS), which was established to provide support to teachers in their own schools, began to provide support in the area of physical education. The RCSS were invited by principals to visit schools to give advice on the curriculum content, methodologies, planning and implementation. Despite the acknowledged importance of physical education as a subject in Ireland, primary teachers were endeavouring to teach an ambitious physical education curriculum in the context of increasingly sedentary lifestyles and equipped with an uneven distribution of resources (Irish National Teachers' Organisation, 2007).

Physical education, with its distinctive subject content and pedagogy, 'is arguably the subject that the generalist teacher finds the most difficult in which to develop competence' (Carney & Winkler, 2008, p. 14). Other issues which impact on teachers teaching of physical education at primary level would appear to be, teachers' previous experience of the subject (Petrie, 2008), initial teacher education (Hayes,

[1] The principle activity of Education Centres (originally Teachers' Centres) is to organise the local delivery of national programmes of teacher professional development on behalf of the Department of Education and Skills. Centres also organize a varied local programme of activities for teachers, school management and parents in response to demand.

Capel, Katene & Cook, 2008) and the availability of professional development opportunities (Armour, 2010). Each of these issues is inter-related and each also impact on quality teaching and more importantly child learning.

Rationale for Research

The need for professional development for teachers in the European Union has been highlighted by the Organisation for Economic Co-operation and Development (2005); 'a lifelong learning perspective for teachers implies that in most countries much more attention will need to be focused on supporting teachers in the early stage of their career, and in providing the incentives and resources for on-going professional development' (p. 132). This is reiterated on the international stage by Hardman and Marshall (2009) who highlight the lack of professional development in physical education in many countries across the world and indicate a need for greater investment in initial and in-service professional training for educators. With the introduction of physical education as a subject (previously it was known as 'physical education and health education') in Ireland in the 1999 Primary School Curriculum, provision of professional development specifically in physical education became necessary to ensure that primary teachers were confident and competent to teach this subject. Teachers expressed concern that the curriculum was overcrowded and with increased workloads, teachers' time for planning and teaching physical education had been eroded (Irish National Teachers' Organisation, 2007). Generalist primary teachers are challenged to have the pedagogical content knowledge to teach all twelve subjects including physical education in a newly designed curriculum; therefore, professional development is now more necessary than ever. The need for compulsory professional development has also been endorsed by Hardman (2007) who adds that for the primary generalist teacher professional development is not only essential but needs to be delivered with appropriate expertise and up-to-date content that is relevant to practice.

In the current climate of educational reform and investment in professional development there is a need for research designed to discover the features of effective professional development and to explore their impact on teachers' and students' knowledge and learning. Guskey and Yoon (2009) argued that 'at this time, we simply have no reliable, valid and scientifically defensible data' (p. 498) to support claims made about effective and ineffective professional development. In Ireland to date, much of the research on the professional development continuum has centred on initial

teacher education. Research in the area of professional development for primary teachers is scarce and in the area of primary physical education professional development even more so. According to Armour (2006, p. 204) 'it could be argued that the existing research is rather patchy, and that we are left with more questions than answers about effective PE-CPD.' Research in the area of primary physical education in Ireland to date identified inadequate facilities, time constraints and lack of training as the main barriers to the teaching of physical education (Broderick & Shiel, 2000; Cosgrave, 2006; Deenihan, 2005; Deenihan, 2007; Fahey, Delaney & Gannon, 2005; Houses of the Oireachtas Joint Committee on Education and Science, 2005; Murphy, 2007; Woods, Moyna, Quinlan, Tannehill & Walsh, 2010). Barriers to facilitating and attending professional development has some commonalities with teaching such as undertaking courses in one's own free time, course location away from teachers' school, cost, lack of resources and facilities to implement new knowledge (Armour, 2006; Armour & Yelling, 2004b; Deenihan, 2007; Irish National Teachers' Organisation, 2007). In Ireland, national in-service and other types of in-service provision could be identified as 'training models' (Kennedy, 2005). This traditional form of professional development, although a starting point and a way of introducing new knowledge to the teacher, does not support the current research findings on effective professional development.

This study seeks to describe, analyse and understand teachers' and children's experiences, of a contextualised, whole school professional development programme in primary physical education. The primary research questions are:

1. Pre-implementation of professional development programme to determine:
    a. What were the existing practices, perspectives and needs of a group of primary school teachers in a main-stream, mixed, urban school, in relation to the teaching of physical education?

2. Post-implementation of a needs-based, contextualised, whole school professional development programme, to determine:
    a. What aspects of the programme supported or impeded the teaching of a quality programme of physical education within the school?

    b. How did the Principal's, teachers' and children's practices and perspectives of physical education change, if at all, during,

immediately post and six months post the professional development programme?

3. Based on what was learned from 1. and 2. above, to determine how the future design and delivery of professional development programmes for primary teachers could be improved and developed further.

Theoretical Framework

A critical part of research is its theoretical framework. The nature and structure of a theory often reflects a particular paradigm consistent with a certain philosophy as 'it organises a complex environment, like a physical education class, and helps you to know where to look, what question to ask, and which answers are more likely to provide new insights' (Ennis, 1999, p. 133). A clear understanding of the research paradigm is essential when designing and undertaking a research study (Creswell, 2003; Lincoln & Guba, 2000). Guba (1990) uses the most common description of the term when he describes a paradigm as 'a basic set of beliefs that guides action, whether of the everyday garden variety or action taken in connection with a disciplined inquiry' (p. 17). LeCompte and Schensul (1999) define a paradigm as 'a way of looking at the world; interpreting what is seen; and deciding which of the things seen by researchers are real, valid and important to document' (p. 41). All paradigms can be characterised by how they respond to three basic questions about (a) the nature of reality (ontology); (b) the nature of the relationship between the known and the knower (epistemology); (c) how it should be studied (methodology) (Creswell, 2003; Guba, 1990; Guba & Lincoln, 1994; Maykut & Morehouse, 1994). The answers to these questions define the paradigm that might be adopted for a particular study. It is important to note that all paradigms are of human construction and therefore subject to all problems that accompany human endeavours.

Philosophical assumptions underpinning this study. Since the latter part of the 19th century there has been much debate about qualitative and quantitative research paradigms (Onwuegbuzie, 2002). Quantitative researchers tend to express positivist assumptions, while qualitative researchers reject positivism and use interpretivism. During the 1950s and 1960s post-positivism emerged where the belief was that reality is constructed and that research is influenced by the values of the researcher. The shift in paradigm development mirrors changing times in the world around us and these changes all impact on how we approach research. Recent developments and many

issues which face society, for example, emphasis on areas such as empowerment and feminism, espouse the use of mixed methods in research in order to provide the most comprehensive strategy to answer the complex research questions (Creswell, 2003; Onwuegbuzie, 2002; Tashakkori & Teddlie, 1998). This study seeks to describe, analyse and understand teachers' and children's experiences, of a contextualised, whole school professional development programme in primary physical education. The exploratory nature of the research questions guiding this study would suggest a qualitative approach is the most appropriate. Aspects of knowledge in certain contexts throughout the study may require a quantitative approach and, in this study, these too had an inductive theoretical drive. While there is merit in exploring the fundamental assumptions and beliefs of the main qualitative paradigms because according to Munhall (2001, p. 4) '…using the concreteness of placing paradigms in stark relief to one another should be of assistance to our beginning understanding of world various views', there is little space, and a descriptive account would add little value. An interpretive paradigm guided this study, this section critically analyses the assumptions underlying this interpretive paradigm, examines social constructivist theory, and establishes a rationale for this research approach.

Interpretivism and constructivism are linked to the social sciences (Schwandt, 1994). Both share the goal of understanding the '…world of lived experience from the point of view of those who live it' (Schwandt, 1994, p. 118). Social reality is considered to exist as individuals' experience it and assign meaning to it (Schwandt, 2003). To understand 'the world of the lived experience' the researcher must interpret it by clarifying the meanings buried in people's actions and language (Sarantakos, 1998; Schwandt, 1994). Constructivists and interpretivists start from the same understanding but differ with respect to epistemological assumptions (Schwandt, 1994).

Interpretivism. Interpretivists believe that the human world is different from the natural world and therefore requires its own paradigm (Schwandt, 2003). Fundamental to interpretivist thinking is the work of Weber and his emphasis on 'verstehen', that is, the empathetic understanding of human behaviour in its own context (Sarantakos, 1998; Schwandt, 1994). Interpretivists assume that humans are unique and consequently prioritise '…the real world of first-person, subjective experience' (Schwandt, 1994, p. 119). Reality is assumed to be '…in the minds of people; … is internally experienced, is socially constructed through interaction, and interpreted through the actors and is based on the definition people attach to it' (Sarantakos, 1998,

p. 35). Interpretivists accept that reality is dynamic and is constantly changing. In interpretivism the goal is to form a close relationship between the researcher and the researched (Holloway & Wheeler, 2002). Research is usually carried out in natural settings, using observational methods or in-depth interviews. Interpretivists assume data have primacy; they approach reality through description (Holloway & Wheeler, 2002; Sarantakos, 1998; Schwandt, 2003). Interpretive researchers differ as to whether language or context is of greater importance in the construction of meaning (Harper & Hartman, 1997). Initially this paradigm appeared to provide the most appropriate framework for this study; the study site was a natural setting (i.e. the school), both observation and interviews were the main form of data collection; a close relationship was to be formed between the researcher and the researched. It was still unclear if the knowledge was subjective and whether it was purely intrinsically experienced, so a review of constructivism was required.

Constructivism. Constructivists share with interpretivists a focus on how people live and interact within their own social worlds (Creswell, 2003). How they differ centres on the constructivists' assumption that knowledge is created by the mind and is socially and experientially based (Creswell, 2003; Guba & Lincoln, 1994; Schwandt, 1994). Knowledge therefore is 'co-created' through interaction with others and with the environment. Teachers working together in a school routinely interacting with each other come to share meanings and judgements. According to Kirk and Macdonald (1998) there is a growing interest in the concept of constructivism in learning research and more specifically teacher learning. Constructionist researchers try to elicit the researched views of their world, their work and the events they have experienced. They look for specifics and try to base an understanding on these (Charmaz & Mitchell, 2001; Gubrium & Holstein, 1997).

The constructivist paradigm assumes a relativist ontology (in the form of multiple mental constructions, socially and experientially based, local and specific, dependent for their form and content on the persons who hold them), it has a subjectivist epistemology (researcher and researched into are fused into a single entity, as the findings are literally the creation of the process of the interaction between the two), and a hermeneutic methodology (individual constructions are elicited and refined, and compared and contrasted with the aim of generating constructions on which there is substantial agreement). The involvement of the researcher is accepted and valued and it

is acknowledged that the researcher impacts on the situation and in turn is impacted upon (Appleton & King, 2002; Guba & Lincoln, 1994).

Criticisms of interpretivism and constructivism and their related qualitative methodologies focus on what is seen as their lack of scientific rigour (Kelly & Long, 2000; Schwandt, 1994). The difficulty with this argument is that it is based on the 'failure' to meet the criteria used to assess quantitative research, for example, objectivity, validity, reliability, generalizability, and replicability. Ironically the weaknesses of interpretivist/constructivist research are increasingly being viewed as their strengths (McPherson & Leydon, 2002). It has been suggested that qualitative researchers concern with reflexivity (a critical examination of researchers beliefs, preconceptions, values and interests) force them to consider their role during data collection and analysis adding a critical dimension to the research (McPherson & Leydon, 2002) not normally addressed by quantitative researchers. Qualitative work can also be criticised for having too small a sample and as a result has been described as merely anecdotal and unrepresentative. It can also be argued that small-scale work can provide richness and depth not always evident in large-scale quantitative studies.

The appropriateness of social constructivism for this study. Social constructivism, in particular, provides a useful and appropriate perspective within which to locate this research. Social constructivism is most strongly influenced by the ideas of Vygotsky (1978) who sees cognition occurring beyond the body. From a social constructivist perspective, cognition is seen not as an individual process but as a collective process spread across the individual's world (Light, 2008). The study school, the teachers and pupils that form the basis of the study are viewed as existing within society, and this society is situated in time and influenced by history and culture. The point here is that knowledge and meaning are created or constructed within a social system and through interactions with that system and the people within it. Lincoln and Guba (1985) help to clarify this, 'events or situations are theoretically open to as many constructions as there are persons engaged in them, or as many reconstructions by a single individual as imagination allows' (p. 77). Kirk and Macdonald (1998) conclude from a social constructivist perspective, 'learning is an active and creative process involving an individual's interaction with their physical environment and with other learners' (p. 377) or as Davis and Sumara (2003) explain, learning is a complex, multifaceted, and continuous process of change that takes place 'within an evolving landscape of activity' (p. 125). Researchers framing their work within this paradigm

also position themselves in the research to acknowledge how their own experiences and background can shape how they see the world. This 'seeing of the world' can be divided into two opposing sets of beliefs or approaches, the objectivist approach or the subjectivist approach. The objectivist approach would seek the absolute truth and treat that being investigated externally from the individual and employ more traditional methodologies based on quantitative methods. The subjectivist approach treats that being investigated as a 'much softer, personal and humanly created kind' (Cohen, Manion & Morrison, 2000, p. 6) and will employ more qualitative based methods such as observations and interviews. In taking a subjectivist approach to a study the principle concern is 'with an understanding of the way in which the individual creates, modifies and interprets the world in which he or she finds him or herself' (Cohen et al., 2000, p. 7). This is further illustrated by Stringer (1996); 'the aim of (constructivist) inquiry is not to establish the 'truth' or to describe what 'really' is happening, but to reveal the different truths and realities – constructions – held by different individual groups' (p. 41). This study sought to describe, analyse and understand teachers' and children's experiences of a contextualised, whole school professional development programme. The social constructivist paradigm, that permits in-depth understanding that caters for an analysis of the truths and realities of all those involved (principal, teachers and children) is consistent with the research question and will meet the aim of this study.

Sustained contact by the researcher throughout the study is also legitimised by this world paradigm, and this in turn allows a relationship to develop between the participants and researcher which will facilitate the collection of rich, in-depth data. It is important to note that the researcher is approaching the research not as a philosopher or a constructivist theorist but rather as a teacher of physical education. In simple terms, the research focuses on what teachers do, why they do it, what they know and what they need; and following a programme – what teachers do, why they do it, what they know and how (or if) these have changed as a result of being exposed to the programme. The study searches for reasons and explanations and assumes that individuals have choices, albeit limited choices, and who they are and what they know are as a result of their interactions with their world and with others in their world.

Qualitative Methodologies

There are five main qualitative approaches outlined by Creswell (2007), phenomenology, ethnography, grounded theory, narrative research, and case study.

These methodologies differ in their philosophic assumptions and in their strategies for data collection and analysis. As with selecting a paradigm, selection of a methodology requires an understanding of these differences.

Phenomenology. The main purpose of phenomenology is to describe phenomena 'phenomenology is an approach that focuses on how life is experienced' (Denscombe, 2003, p. 97). Phenomenology is concerned with human experience and tries to provide a description of how things are experienced by participants. Phenomenology is also interested in how social life is constructed and how people interpret events. It acknowledges that interpreting events is not an individual experience but rather they must be shared with others who are part of that community. This methodology has much to offer this study, but as the research questions seek to not only describe, but to understand, for example what aspects of the programme supports or impedes quality teaching in physical education, it was felt that phenomenology may not fully meet the aim of the study.

Ethnography. Ethnography has its origins in comparative cultural anthropology. It focuses on an entire cultural group (Creswell, 2007). Ethnography is an appropriate method to use if the requirement is to describe how a cultural group works and to explore the beliefs, language, behaviours and issues such as power, resistance and dominance. Again this methodology has much to offer the study but as the participants could only loosely be described as a cultural group (a school community) and this study aims to go beyond description and exploration, and a limitation of the author in cultural anthropology and the concepts explored by ethnographers, it will not meet the aim of the study.

Grounded Theory. Grounded theory tends to be used by those 'on a voyage of discovery' as it meets the needs of researchers exploring new areas in terms of the investigation being undertaken. It also seems to be appropriate for use where researchers wish to investigate human interaction and generate new theory.

> Grounded theory tells us what is going on, tells us how to account for the participants' main concerns, and reveals access variables that allow for incremental change. Grounded theory is what is, not what should, could or ought to be (Glaser, 1999, p. 840).

The researcher cannot identify exactly prior to the study what will occur as he/she has to be open to new angles as a result of the study. In this study, the researcher

is embarking on a process to changes teachers' practices in teaching Outdoor and Adventure Activities through implementing a professional development programme and although certain outcomes are planned for new angles may emerge. According to Locke (2001, p. 59), 'a test of a good theory is whether or not it works on the ground'. Grounded theory moves from a description of what is happening, to an understanding of the process by which it is happening (Strauss & Corbin, 1998). The purpose of this method is to create a coherent grounded theory, by developing abstract concepts and specifying the relationships between them (Bryant and Charmaz, 2007). The aim of this study was not to create an 'abstract schema of a process' (Creswell, 2007). Grounded theory did not allow for the flexibility, which might otherwise by necessary in a primary school context, to explain the process. The researcher also needs to be able to set aside any theoretical ideas or preconceived notions when developing grounded theory, which was not possible in this instance as many of these ideas informed the research process and the professional development design, therefore this methodology was deemed unsuitable.

While examining the literature on grounded theory the method of analysis of qualitative data espoused by Charmaz (2006) in constructing grounded theory was considered for the study as a robust and rigorous method of analysis. It has flexible guidelines and depends on the researcher's view in learning about the experience being researched. The researcher makes decisions about the categories in the data, questions the data and includes personal feelings and experience and priorities in analysis. Therefore, it has potential for understanding the teachers' experience of the professional development they were undertaking, their thoughts and feelings on the process and the extent to which the professional development had effect on their teaching. This method of data analysis was adapted and adopted for the study and is explained in detail in chapter three.

Narrative. According to Creswell (2007) narrative research involves focussing on studying one or two individuals, gathering data through the collection of their stories and reporting their life stories chronologically as well as the meaning of those stories. Narrative studies may have a specific contextual focus such as teachers or children in a classroom. However as this study took a whole school approach and involved twenty eight teachers, individual narratives of the teachers was beyond its scope. According to Clandinin and Connelly (2000) narrative research is best for capturing the detailed stories or life experience of a single life or the lives of a small number of individuals.

Case Study. A case study aims to understand a case in depth, and in context recognising its complexity, which suits the case of a single primary school, as in this study. Case studies are prevalent throughout the field of education (Merriam, 1998). Yin (1994) defines a case study as, 'an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when boundaries between phenomenon and context are not clearly evident' (p. 13). Miles and Huberman (1994) think of a case as a 'phenomenon of some sort occurring in a bounded context' (p. 25). This methodology was deemed the most appropriate for this study. The bounded context, or case was established as the school context, limited by the teachers, children and the school principal. The case was also bounded by the fact that the phenomenon to be studied, teachers' and children's experiences of a contextualised, whole school professional development programme was over a finite amount of time, i.e. the preparation, design and implementation of the professional development programme. The case study approach allows for multiple methods of data collection, and although seen mainly as a qualitative methodology, quantitative methods of data collection are not discarded.

Case study is a suitable research methodology when a researcher is interested in process, an outcome of this study. The case study focuses on holistic description and explanation (Merriam, 1998), process meaning, describing the context and study population, discovering the extent to which a programme is implemented, explaining the cause of the process and its effect or impact (Stake, 1995), which aligns with the research questions of this study. There are many different types of case study; exploratory, descriptive, explanatory (Yin, 1994); descriptive, interpretative and evaluative (Merriam, 1988); ethnographic, action research, evaluative and educational (Sturman, 1999); and intrinsic, instrumental and collective (Stake, 1994). According to Merriam (1998), case studies are useful when presenting information about innovative practices and programmes where little research has been conducted in the past. These studies may then in the future provide a baseline or database for comparative studies, and play an important role in advancing a field's knowledge base. Because of these strengths and the fact that very little research has been carried out in an Irish whole school context of professional development, case study is the most appealing methodology for this study. The professional development programme at the heart of this study can be examined to bring about understanding which may in turn affect and bring about change in practice. Constructivism allows the researcher justify lots of

description in the reporting of the study (Stake, 1995). In this study the researcher is the primary instrument of data gathering and analysis and is left primarily to their own instinct and ability throughout the process. Although, this may be a limitation of a case study, in the research design and methods of data collection and analysis precautionary steps were taken to ensure the integrity of the researcher and the methods of collection and analysis at all times. Following a constructivist view of knowledge does not require the researcher to avoid generalisations, as is sometimes pointed to as a limitation of case studies, but in this case should provide readers with good information for their own generalising. The case study methodology is described further in chapter three – Research Design.

Overview of Methods

A mixed methods approach using quantitative and qualitative methods both sequentially and simultaneously was selected to address the research questions. The qualitative methods of data collection included, open ended questions on questionnaires, focus group interviews, individual interviews, observations, lesson observations and evaluations and field notes to allow the researcher to investigate the professional development programme facilitation in depth. Quantitative methods of data collection and analysis were also utilised in the study and these methods allowed for breadth in the study and included teacher and child questionnaires, physical health and fitness measurements of the children, systematic observations, and self-efficacy questionnaires. Research design, methodology, data collection methods and analysis will be discussed further in chapter three.

Thesis Structure

The thesis is arranged around eight chapters. Following this introduction, chapter two contains an analysis of the relevant literature. An overview of the education system and its history in Ireland, and a more detailed account of physical education in Ireland are given. The theories and literature which inform the professional development programme design along with outdoor and adventure activities are also discussed. An understanding teacher change as a result of professional development is discussed alongside relevant and associated areas such as teacher learning and knowledge, particularly in relation to physical education.

Chapter three describes the research design and research methodology, which includes a discussion surrounding the suitability of employing qualitative and quantitative research methods to address the research questions. Detailed accounts of the research participants, methods of data collection and data analysis are provided alongside ethical considerations. Some of the limitations of the study are outlined.

Chapter four presents the findings from the initial study – understanding the case. These findings present a description of the school, teachers' and children's practices and perspectives in and of, their school and physical education programme. Children's physical activity practices are examined and physical measures for the children reported.

Chapter five is concerned with the professional development programme to be facilitated as part of the study, based on the findings outlined in chapter four. The specific aims, content and structure of the programme as aligned with the strands of the Physical Education Curriculum (Government of Ireland, 1999b) are outlined.

Chapters six presents the findings from the initial facilitation of the professional development programme and the six month follow-up support as part of the professional development programme. The chapter focuses on the teachers' and children's experiences of the professional development programme in the strand, Outdoor and Adventure Activities in successive academic years.

The findings outlined in chapters four and six are drawn together in chapter seven where the propositional statements and key themes are discussed using an evaluative lens. Each theme is compared and contrasted with the literature and new insights are highlighted. Finally, the conclusions, limitations of the research and implications of the findings for practice and research in professional development and physical education both at pre-service and in-service teacher education are outlined.

Chapter Two: Literature Review

There are three distinct sections to this literature review. Section one provides information on the Irish context that informed this study. It charts the key developments in primary education and the physical education curriculum in particular. It provides a critical synopsis of contemporary issues, such as the 1999 curriculum reform and initial teacher education provision and it gives an overview of the professional development available to primary school teachers to date. Section two reviews literature on i) critical features that define effective professional development and ii) models of how professional development and how they work to influence teacher change. Section three concludes this chapter with a review of Outdoor and Adventure Activities, as this was the content focus of the programme of professional development selected by the teachers in this study.

Literature Review Methodology

The databases searched included the library catalogues (Online Public Access Catalogues - OPACs), biographical databases (Educational Resources Information Center -ERIC, Swetswise, EBSCOhost, SPORTSdiscus) and internet search engines (Altavista, Google, and Google scholar). Initially, key word searches (professional development, effective professional development, physical education professional development, primary physical education, educational reform, teacher change) were conducted for work published from 1980 to 2011. The focus of the reading was then refined and key journals, authors and texts identified. Additionally, consultation with my peers (nationally and internationally) in fields such as education, physical education, sport and exercise science and health helped me refine and update the literature review. Numerous national and international commissioned studies acknowledging professional development and reviewing professional development initiatives were also reviewed.

Section One:

Education in Ireland

Primary physical education in Ireland can be understood only against the background of its general educational system. It is important to understand the reforms and changes which the State has undergone to appreciate the current landscape of physical education. The system of education has evolved in Ireland over the past two

centuries through a series of decisions, arrangements, and compromises. The Irish National School system was established in 1831. Since then the curriculum has undergone major changes in 1878, 1900, 1924, 1971 and 1999. Curriculum reform at each stage followed reviews from the bodies charged with primary school curricula at the time.

First or primary education is available, free, to all pupils and school is compulsory between the ages of six and sixteen years. Children may enrol in primary schools on or after their fourth birthday, although they are not obliged to attend until the age of six. The typical first level or primary school enrols pupils by age into eight year groups, ranging from junior infants to sixth class. The vast majority of schools are state-funded, catering for pupils from four to twelve years of age. Transition to secondary or post primary school is at age twelve, following completion of the primary or first level course. Administration of the Irish Education System is centralised in the Department of Education and Skills (DES) prior to 2010 known as the Department of Education and Science. There are 3,197 national (primary) schools, 470,270 primary pupils and 27,628 primary teachers, including special schools, in the Republic of Ireland (academic year 2006-2007) (Department of Education and Science, 2007).

The current Primary School Curriculum was launched in 1999. This curriculum builds on the 1971 'Curaclam na Bunscoile' (Curriculum of the Primary School) encompassing it's philosophical thrust, reflecting the thinking and aspirations of the National Convention on Education (1994), the White Paper on Education (1995) and the Education Act (1998) and incorporating current educational thinking and pedagogical best-practices (Duffy, 1997). The aims of primary education in Ireland are:

- to enable the child to live a full life as a child and to realise his or her potential as a unique individual;
- to enable the child to develop as a social being through living and co-operating with others and so contribute to the good of society;
- to prepare the child for the continuum of learning (Government of Ireland, 1999a)

The National Council for Curriculum and Assessment (NCCA) is responsible in Ireland for the development and publication of curricula and has the responsibility for devising the primary curriculum. Alongside the Primary School Curriculum

(Government of Ireland, 1999a), 'Teacher Guidelines' for each subject area were devised, to support the implementation of the curriculum. The curriculum and teacher guidelines were drafted after lengthy consultation with the major stakeholders in education. The Primary Curriculum is designed to nurture the child in all dimensions of his or her life – spiritual, moral, cognitive, emotional, imaginative, aesthetic, social and physical (Government of Ireland, 1999a). The curriculum is divided into the following key areas: Language (English and Irish), Mathematics, Social, Environment and Scientific Education (History, Geography and Science), Arts Education (Visual Arts, Music and Drama), Physical Education and Social, Personal and Health Education. Religion is also a subject studied in primary schools in Ireland and depends on the denomination of the school as to its syllabus.

Physical Education Reform in Ireland: Past and Present

Provision for physical education in Irish primary schools has progressed slowly over the past century. The reasons for this are many and varied. In order to understand fully how we arrived at the current curriculum, we need to establish how physical education in Ireland has changed and developed.

The establishment of the Irish National School system (prior to the formation of the State) introduced physical drill for all children in primary schools. In 1898, The Commission on Manual and Practical Instruction in Primary Schools under the Board of National Education in Ireland issued a report highlighting the practices in physical drill which prevailed at the time. Arising from this report was the recommendation of a grant to be awarded to schools if they ensured efficient, systematic instruction in drill and physical exercises. Consequently, this ensured that some form of physical education, however rigid, was featured in all classrooms. Economic and cultural developments also impacted the inclusion of physical exercises in schools. Young boys in particular were encouraged to become strong and healthy through physical drill as the British military sought to improve their forces.

At the turn of the 20th century, there were two reports which contained references concerning physical drill, which was the closest 'subject' to Physical Education, as it is now known, and its provision in primary schools. The Belmore Report made important recommendations concerning physical drill in primary schools (Coolahan, 1981), 'as well as the three R's, kindergarten, manual instruction, drawing,

singing, object lessons, elementary science, physical education, cookery and laundry as obligatory subjects' (p. 34). According to Coolahan (1981) within a short time the new subjects including physical education were 'being taught in almost all schools and in a fairly satisfactory manner' (p. 36) and six years later the Dale Report described significant increases in the number of primary schools providing some form of drill as part of the curriculum (Duffy, 1997). The syllabus at that time was largely geared towards marching and regimented exercises and physical drill at primary level and became an accepted part of the school week. With the foundation of the Republic in 1921 this position of obligatory physical education changed. The National Programme Conference in 1926 recommended that the number of subjects be reduced, as there was a need to emphasise Irish culture and language in the schools (Duffy, 1997). Physical training suffered and was no longer a compulsory element of the primary curriculum. It is interesting to note that prior to the formation of the Republic almost a century ago, physical activity was a compulsory part of the school day. In 1947, the Minister for Education and the Irish National Teachers Organisation (INTO) proposed that the primary curriculum should be expanded again and should include, amongst other subjects, compulsory physical education, and again in 1950 the Council of Education recommended the inclusion of physical education as a compulsory subject, however these recommendations were never adopted (Coolahan, 1981). Advocates of physical education have spent the last century trying to impress on Government the importance of reverting to this 'compulsory status'. One of the reasons which may account for the lack of compulsory status has been identified by Duffy (1997) as the government's absence of duty to provide for the 'physical' education of the child as identified in Article 42 of the constitution,

> 'the primary and natural educator of the child is the Family and guarantees the inalienable right and duty of parents to provide according to their means for the religious and moral, intellectual, physical and social education of the children' the state shall 'as guardian of the common good, require in view of actual conditions that the children receive a certain minimum education, moral, intellectual and social' (Government of Ireland, 1937).

The 'religious' and 'physical' education of the child was the responsibility of the family and the Church. As the majority of primary schools in Ireland to date, have been Church maintained, religious education has played a strong role in children's education, however the same cannot be said for physical education. In 1932 the Revised Notes for Teachers was published. This document outlined the background of the development of

the Swedish system of physical training and stressed the breadth of the curriculum – including references to national games, dancing and health education. Despite these initial moves towards a national system of physical training there were no advancements through the 30s and 40s. In fact, the only reference to physical education at policy making level was in 1936, when a committee was appointed by the Minister for Education to examine and report on the problem of physical education in the schools and report to the minister as to a system of physical education most suitable for introduction in the schools. Much work was carried out in the area and recommendations were made to the minister, however, very little if anything came from the committee's findings. The committee recommended that the first essential requirement of the Government towards improving physical education was the establishment of a Central Institute or college to train organisers in the Department of Education, teachers in secondary and vocational schools and for the provision of special and refresher courses for all serving teachers in national schools. This has been achieved to an extent with the establishment of Thomond College, now the University of Limerick, which provides a specialist degree in Physical Education for second-level teachers. University College Cork and Dublin City University began offering specialist degrees in physical education for teachers at second level from 2006. Refresher courses are available as summer in-service courses for teachers in physical education. The majority of these courses are facilitated through the Education Centres under the auspices of the Irish Primary Physical Education Association (IPPEA) since 2002. However, as yet there is no specialist course for 'organisers in the Department of Education'.

The committee in 1936 also recommended that:

- physical education become a compulsory subject in all schools and that 3 periods minimum should be allocated to physical education per week
- it should become a subject for certificate examination
- a pass at leaving certificate level should be an essential qualification for entrance into a training college

Despite these recommendations physical education is still not a compulsory subject at any level, and it is not, yet, a subject for certificate examination. Therefore, the recommendation that all students entering teacher education should possess a pass at leaving certificate level is unachievable. The recommendations continue;

- In training colleges, physical education should be a compulsory subject in the examinations and an integral part of the studies.
- Teachers should be assisted by organisers attached to the Department of Education
- Teachers should be able to avail of short refresher courses in physical education
- A Diploma in Physical Education should be offered to those with a special aptitude in the area.
- A salary bonus should also be offered to teachers taking a Diploma in Physical Education would be an incentive to teachers to interest themselves in the area of physical education. This would lead to competent teachers taking charge of physical education in National Schools

We have come a long way since the recommendations of 1936 and many of the above recommendations have been achieved; physical education has become a compulsory subject and integral part of studies in the colleges of education. The hours allocated to physical education in the colleges of education have increased from an average of 25 hours over three years in 1990 (Deenihan, 1990) to an average of 48 hours over three years in 2000 (Colleges of Education Physical Education Consortium, 2009). Further studies in primary physical education are only recently available whereby qualified teachers can study to gain a Certificate/Diploma in primary physical education (first graduate in 2006) or a Masters in Education with a specialism in primary physical education (first graduate in 2008). These qualifications do not ensure a salary bonus; however these teachers would be seen as leaders in physical education in their schools and in some cases may be in receipt of a post of responsibility salary bonus. Although the recommendations were made in 1936 it has taken between fifty to seventy years to put some of them in place and it is also interesting to note how seventy years ago the recommendations made are the same ones researchers continue to make today.

The Council of Education (1954) stated for secondary physical education, that 'from the beginning of its deliberations, the council regarded the absence of Physical Training as a defect in the existing curriculum' and to redress the situation the Council proposed that the subject should be renamed physical training, health and hygiene and that the overall aim should be to promote 'the development of carriage and physical

alertness, good posture in sitting and the general cultivation of health' (p. 188). However, there was no action taken on amending the primary school syllabus for physical education until 1971 and the publication of Curraclam na Bunscoile. The curriculum was presented in two handbooks that were issued to every serving teacher and student teacher. The handbooks contained the aims and objectives of the curriculum as well as the content for each subject. Also included were some suggestions as to how each subject could be taught. A child-centred approach was critical in the thinking behind the 1971 curriculum and underpinned learning in all subject areas.

Physical education was only recognised formally as a subject in 1971 within the primary school curriculum, following a pilot introduction in two hundred schools in 1968. Significantly, it stressed that 'to deny a pupil the opportunity of expressing himself in movement and general physical activity is to neglect an essential aspect of growth in his personality and character' (Government of Ireland, 1971, p. 289). In some ways this was forward thinking in Ireland and this 'right' has been further elaborated in UNESCO's International Charter of Physical Education and Sport,

> Every human being has a fundamental right of access to Physical Education and Sport, which are essential for the full development of his personality. The freedom to develop physical, intellectual and moral powers through physical education and sport must be guaranteed both within the educational system and in other aspects of social life (1978, Article 1.1, p. 8).

The aims of physical education as outlined in the 1971 curriculum were 'to develop a suitable range of motor skills, to help him to adapt himself to his immediate environment and to cultivate desirable social attitudes' (Government of Ireland, 1971, p. 289). Whole class instruction on physical drill was discarded in favour of an approach which allowed each child to develop at their own rate according to their individual ability.

Keating (1989) in a presentation at the Physical Education Association of Ireland (PEAI) conference looking to the future, made a number of recommendations for physical education. In the following section if, or how well, these recommendations were met (*in italics*) will be discussed.

- Each child attending an Irish Primary School should receive 30 minutes active physical education each day. *According to the 1999 Curriculum one hour per week is the recommended time allocation.*
- A modern syllabus, which emphasises the importance of psychomotor skills among primary school children, should be published in consultation with teachers. *In 1999, the curriculum was launched and teachers were involved in consultations, but it took until 2006 for the Physical Education Curriculum (Government of Ireland, 1999b) to be implemented.*
- Publish a handbook giving teachers of all ages and levels of experience practical guidelines for teaching physical education in all classes. *Alongside the curriculum was published the Teacher Guidelines (Government of Ireland, 1999c) to fulfil this role. In January 2006, the resource materials for teaching physical education (Primary Schools' Sports Initiative, 2006) were launched. The resource materials contained on a CD-rom were distributed to all schools and consist of lesson plans and resource materials for each strand for each class group aligned with the curriculum.*
- Provide a National Certificate Course with a minimum of 120 hours, which can be undertaken at pre-service and in-service levels. *No such course exists as yet. Only St Patrick's College, Drumcondra offer a postgraduate certificate course consisting of four, twenty hour modules.*
- Provide local in-service courses staffed by competent and highly motivated tutors. *The Irish Primary Physical Education Association was formed in 2002 and co-ordinate a number of In-service Physical Education Summer Course's in conjunction with the Education Centres. A number of Teacher Professional Communities (TPCs) in primary physical education are in existence (6 in 2011) and these TPC's facilitate at least one workshop a term for teachers.*
- Appoint a group of specialist advisors who will motivate and provide practical guidelines to teachers in their own schools on the teaching of physical education. *A group of 26 teachers were trained as tutors to 'mediate' the Physical Education Curriculum (Government of Ireland, 1999b) as part of national in-service from 2004-2006. Following this*

two year role they were reduced to 13 tutors. These tutors continued to support teachers until 2010, though the number of tutors continued to decrease each year and job descriptions changed. Currently support provision is being re-designed by the newly formed Professional Development Service for Teachers (PDST).

Cutbacks continue to inhibit the consolidation of school physical education with the Minister for Education cutting the annual physical education grant in 2002. Although many positive statements were made during the eighties and nineties concerning the value of the subject, no major change in the position of the subject within the curriculum occurred (Duffy, 1997). Physical education, due to lack of government investment at many levels (for example, provision of equipment, facilities, professional development opportunities and research) has only progressed marginally from its position at the turn of the 20th century.

In the early 1990's the publication of two reports by the Primary Review Body and the Review Body on the Primary Curriculum saw the beginning of the next period of change in the Irish Primary Curriculum. The Report of the Review Body on the Primary Curriculum (Government of Ireland, 1990) on physical education stated that while the vast majority of inspectors found the physical education curriculum suitable, teachers found it unrealistic and felt that they required specialist knowledge. The reporting committee found that in the case of primary generalist teachers, they required detailed specification of aims and objectives of physical education. Teachers needed to know what skills, knowledge and attitudes were expected of the children in their classes. Teachers felt that practical guidelines to achieve these were also necessary as well as the appropriate resources and facilities to be made available in order to implement the new curriculum. An appropriate programme of pre- and in-service training was also highlighted as an area to be addressed with the implementation of a new curriculum, mainly due to the lack of confidence of teachers with the delivery of the subject. The report also recommended that the physical education time allocation in the Colleges of Education be increased so that newly qualified teachers felt more confident teaching physical education. The Review Body recommended that some level of specialisation among teachers should be encouraged and that each school should have at least one teacher with a particular interest and expertise in this area to help support the other teachers in the school. Another recommendation of the report was that

employment of specially qualified teachers who could service a number of schools would also be of benefit for safety reasons and because of the nature of the skills that are required in specialised forms of physical education. The similarities can be seen between these recommendations and those made over half a century previously. These recommendations led to the NCCA initiating revision of the curriculum in 1991. The draft curriculum was published in 1997 which brings us to the current situation with the launch of the Primary Curriculum in 1999 and the national rollout of the programmes spread over the following four to six years. The implementation date for physical education in primary schools was September 2006, seven years after its launch.

The curricular reforms, reviews and recommendations outlined above show both how far we have come in Ireland and yet how far we have still to go to ensure teachers are prepared to teach quality programmes of physical education. Educational reforms which did not include teachers in their design, or account for teacher professional development in their implementation have been shown to be unsuccessful and professional development opportunities which are not embedded in curricular reform also struggle to be successful. Teachers can resent reform when it is imposed on them and they feel neither part of or supported to implement the changes (Villegas-Reimers, 2003). Although many of the reforms and recommendations outlined above involved teachers at certain stages, they were not fully sustained due to lack of financial investment in on-going support, time investment in professional development nor did they have a local focus.

Physical Education in the 1999 Irish Primary Curriculum

The professional development programme which was designed to support teachers teaching of physical education as part of this investigation was aligned with the 1999 Physical Education Curriculum (Government of Ireland, 1999b), therefore, it is important that we understand how it came about and its content.

Physical education was one of the subjects for which a new curriculum was devised. The previous curriculum had been in place since 1971 and included health education. Health education has since become a separate subject in the curriculum and is known as Social, Personal and Health Education (SPHE). Primary school physical education is an integral part of the education process, without which the education of the child is incomplete (Government of Ireland, 1999a). According to the Primary

Curriculum for Physical Education (Government of Ireland, 1999b), physical education is 'the process which provides the children with learning opportunities through the medium of movement and contributes to their overall development by helping them to lead full, active and healthy lives' (p. 2). Individuals should establish the habit of being physically active from a young age, as participation in exercise is associated with a reduced risk of many chronic diseases and improved psychological health (McGuinness & Shelly, 1995; Woods, Nelson, O' Gorman & Moyna, 2007; Woods et al., 2010). By the time a child reaches the end of primary school a significant proportion of his or her mental and physical potential has already been realised and a child who has not mastered a physical skill may well be disadvantaged for the rest of his or her life (Balyi, Cardinal, Higgs, Norris and Way, 2006).

The focus on the body and on physical experience makes physical education a unique subject in the curriculum. It provides opportunities for acquiring skills such as the development of initiative, tolerance, patience, safety, communicating with and understanding of others, ability to get on with others, thinking before acting, enjoyment of participation and satisfaction from success (Government of Ireland, 1999b). Among the many social skills that can be promoted are; the ability to work in groups, coping with success and failure, responsibility, organisation, leadership and coping with competition and co-operative play. The Primary Physical Education Curriculum (Government of Ireland, 1999b) aims that, 'through a diverse range of experiences providing regular, challenging physical activity, the balanced and harmonious development and general well-being on the child is fostered' (p. 2). It is designed to meet the physical needs of the child and the need for movement experiences, challenges and play. It aims to develop a desire for daily physical activity and encourage constructive use of free time and participation in physical activities in adult life. The system claims to be built on the principles of variety and diversity and not of specialisation.

The programme for the subject is outlined in the Physical Education Curriculum (Government of Ireland, 1999b). The subject content is divided into six 'strands', which are Athletics, Aquatics, Dance, Games, Gymnastics and Outdoor and Adventure Activities. This document is supported by the Physical Education Curriculum, Guidelines for Teachers (Government of Ireland, 1999c). The publication provides suggested teaching approaches and methodologies, guidelines on organisation and assessment as well as school and classroom planning. The approach teachers should

take to issues such as gender, competition, extra-curricular activities; children with special needs and sport are also outlined. In Ireland, the majority of children are taught physical education by their class teacher. The curriculum has been designed with class teachers in mind and states that 'in order to implement the programme the teacher does not need to be a specialist in the teaching of physical education' (Government of Ireland, 1999c, p. 24). According to Hardman and Marshall (2009), recent educational reforms in some countries and in response to the perceived obesity epidemic and concepts of active lifestyles some physical education curricula are undergoing, or have undergone, change. Terms used most frequently are physical education (e.g. Ireland, United Kingdom and some states in America) or health and physical education (e.g. Australia, New Zealand and Finland). In Scotland physical education is within Health and Wellbeing and 'in South Korea it is with music and art to form '*a pleasant life course*' (Keay, 2011, p. 30). However, similar to practice reported in Ireland (Broderick & Shiel, 2000; Deenihan, 2005; Woods et al., 2010), it is reported worldwide that there is a 'sustained orientation towards sports-dominated competitive performance related activity programmes … which collectively account for over 70% of PE curriculum content in both primary and secondary schools' (Hardman & Marshall, 2009, p. 53).

Primary Physical Education Initial Teacher Education

Initial teacher education (ITE) is the beginning of teachers' professional learning and it is necessary to examine ITE in an Irish context to understand better teachers' practices and perspective on teaching physical education, The literature suggests that this is the time when a solid foundation for lifelong learning should be laid (Cochran-Smith & Lytle, 1999; Darling-Hammond & Bransford, 2005), but, it is often the blame for teachers' perceived lack of knowledge and expertise. Many research studies in Ireland (Cosgrave, 2006; Deenihan, 2007; Fahey et al., 2005; Irish National Teachers' Organisation, 2007; McGuinness & Shelly, 1995) point to the source of teachers' difficulties related to perceived competence in teaching physical education as 'to derive their origin, in part at least, from the low level of time devoted to the subject during primary school teacher training courses' (Duffy, 1997, p. 209).

The majority of Irish Primary teachers take a concurrent, three-year, Bachelor of Education degree (B.Ed.) at one of the country's five colleges of education. Currently there are approximately 1,500 students graduating as primary school teachers from the colleges of education each year. On average these students receive between

30-50 hours (depending on the college) of physical education instruction during their time spent in pre-service education. Some students, on average a total of 50 per year, can choose to study physical education as a special option in three of the colleges of education. These fifty students leave college with, on average, 90 hours of physical education tuition, compared to, on average, 1200 hours tuition received by a physical education specialist at secondary level (Murphy, 2007). Students undertaking the three year undergraduate course, also take an academic subject, for example, maths, music or bio-science as part of their degree, but cannot take physical education for primary school level as a specialist academic subject. More recently a postgraduate qualification (consecutive course) in primary teaching, where students complete an eighteen-month course, including physical education as one of 11 subjects has been established. The hours vary between the colleges, with students receiving between 20 and 30 hours of physical education. Approximately 180 students graduate from the colleges of education with this qualification each year. Once qualified, teachers can undertake further taught studies in primary physical education, at St Patrick's College (a college of Dublin City University), either at Post Graduate Certificate, Diploma or Masters in Education level.

Many students entering the college do so with a deficit in physical education compared to other subjects. They may not have received any physical education tuition at second level, or their exposure to the subject may have been very limited, focusing mainly on the games strand (Woods et al., 2010, Ní Chróinín & Coulter, 2012). In the literature on teacher education, there is a strong emphasis on academic preparation, with subject content of the most interest to physical education teacher education professionals (Siedentop, 2002; Tinning, 2002). Time allocation to physical education in primary ITE courses, across the globe, is claimed to be a barrier to accrual of adequate content knowledge. Finland is reported as having the highest number of hours (189 hours) allocated to physical education teacher education, while in Norway no prior training in physical education teacher education is required for primary teachers (Keay, 2011, p. 30). In some states in North America, physical education is taught by 'classroom teachers who have no substantial training in the subject matter, (and) are often without serious preparation in the necessary pedagogy' (Locke & Graber, 2008, p. 267). Other countries permit a one year postgraduate course in order to obtain the necessary teaching qualifications for teaching at primary level. In reality this means fewer hours in subject specialism, and may mean no exposure to physical education

teacher education at all. In summary although the time allocation to primary physical education teacher education in ITE in Ireland could be improved upon, the hours allocated are relatively high on a global scale.

Implementing the Physical Education Curriculum

When planning a programme of professional development, it is vital that the design considers the national and local context in which teachers work. There have been a number of studies outlining the barriers, reported by teachers, to their implementation of a quality physical education programme in Irish primary schools. These are mainly cross-sectional studies, few provide longitudinal or qualitative in-depth results, and none have reported using valid or reliable instruments for data collection. They do, however, provide a valuable insight into the world of primary school teachers.

The lack of training, almost non-existent in-service training, and lack of facilities are given as the main reasons for the lack of enthusiasm about teaching physical education amongst primary school teachers (Broderick & Shiel, 2000; Cosgrave, 2006; Deenihan, 1990; Fahey et al., 2005; Murphy, 2007). Barriers such as physical education being perceived as a low priority subject, lack of financial resources, insufficient equipment and facilities, and low level of Principal support exist not only in Ireland but in other countries as well (Barroso, McCullum-Gomez, Hoelscher, Kelder and Murray, 2005; Hardman & Marshall, 2005; Hardman & Marshall, 2009; Kirk, 2006). Since the introduction of the Physical Education Curriculum in 1999, there have been very few negative statements reported about the programme content, unlike previous programmes, but rather in how it can be implemented in all schools, with all pupils, by the class teacher (Fahey et al, 2005). Since the publication of the 1971 Curriculum na Bunscoile and the recognition of physical education as a subject in its own right, the opinion of teachers has been sought on the teaching of physical education. The following is a review of some of these Irish studies. In reporting the evidence of these studies it is important to note, that no observational studies have been carried out and evidence from teachers, principals and children is self-reported. Later in the chapter when discussing effective professional development, in the absence of more substantial and appropriate evidence, it can be seen how overcoming these reported barriers are key to teacher change in teaching practices and in turn student learning.

Teachers' perceptions of teaching physical education. Teachers' perceptions will be discussed under the following headings: specialist versus generalist; time allocation; facilities and equipment; curriculum content; and teaching methodologies.

Specialist versus generalist. The Irish National Teachers Organisation (INTO) survey (1976) found that 64% (N =7,677) of the teachers sampled taught physical education and of these only 34% were satisfied with the way they taught it. In the same study, 56% of teachers felt there was inadequate in-service training in physical education and they indicated that any professional development should include subject matter content (55%) and opportunities for demonstration and discussion (88%). The report on the National Education Convention (Clancy, Coolahan, Drudy, Hannan, Kellaghan, Ní Mhaicín et al., 1994) and the INTO survey (1976) found that in general teachers were enthusiastic about the subject but were reluctant to teach it due to feelings of incompetence, insufficient pre-service training and on age grounds. Although there are many arguments to support the employment of a specialist, a teacher educated to teach primary physical education, these teachers do not exist, as yet in Ireland. Any specialist teachers employed by primary schools to teach physical education are teachers educated to teach second level physical education. It is suggested that the best teacher of physical education for the primary school is one who is trained as a general class teacher with a physical education specialisation (Carney & Howells, 2008; Coulter, Marron, Murphy, Cosgrave, Sweeney & Dawson, 2009; Government of Ireland, 1999c; Irish National Teachers' Organisation, 2007; Roche, uí Dhrisceoil & Weed, 2009). The Council of Europe (1985) stated that 'the quality of physical education in primary schools depends upon the quality of the class teacher' (p. 5). The Council goes on to note that the first and most important essential is a competent and imaginative teacher. A good teacher can go a long way to overcome the provision of poor facilities, whereas the provision of the best of facilities and equipment will not compensate for a poor teacher (Talbot, 2008). Wright (2002) questions whether physical education is more difficult to teach than any other aspect of the curriculum. He argues that if given sufficient training and time similar to other subject areas, class teachers should be able to teach physical education themselves. Hardman and Marshall (2009) and Talbot (2008) support this idea pointing out that if pre-service and in-service programmes in physical education for primary school teachers were given more time, funding and recognition then the need for specialist physical education teachers in

primary schools may not be an issue. According to the Primary School Sports Initiative (Houses of the Oireachtas Joint Committee on Education and Science, 2005) it is important at all times that class teachers' fears are allayed about teaching physical education and they should be educated that large parts of the curriculum are 'doable' which do not require specialist knowledge. As government policy, and school finances, will not allow for specialist teachers to be employed in primary schools, it is imperative that professional development opportunities are available to generalist primary teachers so that they are equipped with the content and pedagogical content knowledge to teach physical education effectively.

Time allocation. Time for planning and reflection is also crucial to effective teaching and teachers need to ensure that they make the best use of time they have available to them. McGuinness and Shelley (1995) noted suggestions that the NCCA Committee for Physical Education and Health Education recommend that not less than 10% of formal teaching time be allocated to the subject, which should make an important contribution towards promoting the physical well-being of the pupils in primary schools. The 1971 curriculum had no guidelines on the recommended amount of time that should be allocated to the teaching of physical education. Current guidelines for primary school physical education recommend, but do not require, 60 minutes of physical education per week (Government of Ireland, 1999b). Although only recommended it is important to note 'minimum' in the policy statement. There is concern that the reality of the delivery of physical education in schools is less impressive and falls widely short of recommended standards (Fahey et al., 2005). Recent research (Woods et al., 2010) shows that on average primary school children receive 46 minutes of physical education weekly. Average weekly time allocation for physical education across the European Union (EU) is 109 minutes (range of 30-240 minutes) with clusters around 60 and 90 minutes in primary schools (Hardman & Marshall, 2009). It can be seen from these recent studies that even with the implementation and recommendations of the curriculum as well as national in-service children are not receiving recommended levels of physical education and fall far short of EU minutes at primary level.

The decline in time allocation throughout the years has been blamed on an ever-expanding curriculum. Teachers in Ireland have to teach twelve subjects highlighting Hardman's (2008) findings; 'physical education is being squeezed out of the education system by more and more compulsory academic courses…..which hold little benefit

compared to PE' (p. 7). Despite national policy concerning required, prescribed, recommended or aspirational guidelines, local levels of actual control of curriculum time allocation give rise to variations between schools and therefore, difficulties in specifying definitive figures. Physical education is reported to have a marginal status in many countries internationally and this can have an effect on its time allocation in schools (Hardman & Marshall, 2009). Although physical education may be legislated for and be on the curriculum, in some countries students are allowed to substitute other activities for required physical education, or are granted exemptions (Keay, 2011) and in Australia, similar to Ireland and the UK, a crowded curriculum and a focus on literacy and numeracy create barriers to including physical education (Morgan & Hansen, 2008).

Facilities and equipment. Lack of adequate facilities and equipment are and still seem to be the main barriers according to teachers in the delivery of the physical education curriculum and also tends to be the most difficult barriers to overcome – where can a teacher teach their physical education programme with the Irish climate of uncertainty, especially gymnastics and dance, when they have no indoor facility? Deenihan (1990) concluded that 'many children are experiencing very little physical education in our primary schools because of lack of basic facilities and resources' (p. 10). Little change was reported from his earlier findings (Deenihan, 2007) in that inadequate facilities and equipment was the main barrier to the provision of physical education in schools. The INTO (Irish National Teachers' Organisation, 2007) reported that when they asked the delegates (N=300) who attended their consultative conference on education in 2006 about their facilities for teaching physical education, 31.6% did not have a hall, 11.8% did not have a suitably surfaced yard, 60.7% did not have a general purpose (GP) hall and 21.3% did not have a playing field. Principals in primary schools surveyed by the Economic and Social Research Institute (ESRI) (Fahey et al., 2005) were generally dissatisfied with the facilities for sport in their schools. Two thirds (N=137) said they were 'not at all adequate' (p. 61) but findings suggested that principals were more concerned about indoor than outdoor facilities. Darmody and colleagues (2010) in their study examining school design and environments reported that many schools have access to outdoor space for the teaching of physical education but are restricted within their programmes due to the lack of access to indoor space. Woods and colleagues (2010) noted that 81% (N=47) of primary principals reported not having access to an indoor multi-purpose hall on-site for the purpose of teaching

physical education, with almost one in every two (45%) principals feeling that their physical education and sports facilities were 'not at all adequate' (p. 43). Compared with the rest of the world Ireland is no worse off, with 37% of countries reporting dissatisfaction with the quality of their facilities and 50% indicating that the quality of provision is "limited/insufficient" (Hardman & Marshall, 2009).

Many schools have no facilities and there are instances where general-purpose rooms have been provided but have been converted into classrooms because of the pressure for space to teach the non-physical education element of the curriculum (Houses of the Oireachtas Joint Committee on Education and Science, 2005). According to the Department of Education and Science Planning and Building Unit (2007) the provision of a GP room catering primarily for the teaching and learning of physical education (p. 22) is considered within the design brief for new schools and or renovations/extensions to school building projects. The GP room, however, may also be used for other curricular subjects, school assemblies and other functions requiring a large assembly area. The general purpose room store should open directly off the GP room and is for physical education equipment (p. 23). However, due to government cutbacks and slow progress being made with regard to school extensions and building programmes, many schools have had to adapt their GP hall for alternative purposes. In most instances this is due to an increase in pupil numbers and a lack of classrooms to accommodate them in. Where schools are under tremendous pressure it is easy to understand providing an extra classroom before a physical education hall at that moment may seem the most practical one. Taking decisions like this again reduce the status of physical education as a subject and make it less important than all other subjects on the curriculum. It also reduces opportunities for teachers to teach physical education and thus their opportunity to develop as teachers of physical education is hampered.

In 2002, the physical education grant, a nominal grant from the Department of Education and Science, to primary schools for the purchase of equipment was discontinued due to government financial cutbacks. This grant at least enabled schools to invest to an extent in physical education resources. Its abolition shows the Government's continued disinterest in supporting physical education. A grant scheme for playground and physical education equipment in primary schools was provided in 2010 in a once off allowance, where primary schools could avail of €1,000 per school and €10 per capita to meet requirements arising in respect of playground and physical

education equipment (Department of Education and Skills School Building Unit, 2010). Many schools have come to depend on parents' and children's fundraising efforts as well as 'token-collecting' from local supermarket initiatives to supply the materials required, to implement, the physical education curriculum. The National Taskforce on Obesity (2005) included among its recommendations that the Department of Education and Science should prioritise the provision and maintenance of physical education and physical activity facilities to address the issue of equity and access in all schools. This echoes the reports by the ESRI (Fahey et al., 2005) which found that facilities, especially those in primary schools need to be improved, particularly those necessary to indoor activities.

There has not been a period of significant funding in physical education. Investment is necessary at primary level before much of the curriculum can be fully implemented. There is little evidence to suggest that children are experiencing quality programmes of physical education as the research to demonstrate accurately the level or quality of provision of physical education programmes at all levels of the primary school is absent. Additionally there are no inspectors specifically for primary physical education (compared to two, currently, at second level) and therefore there are no accurate reflections or reports at Department of Education and Skills level as to the teaching of the subject.

Physical education curriculum content. Not only is the subject content important to this study, but so too is the manner in which teachers impart this content, or the teaching methodologies engaged in by primary teachers. Examining and understanding which strands or aspects of strands (subject content), are taught and how they are taught by teachers can have many purposes and a profile of national teaching practices and perspectives may inform the research design and data collection. This information will guide the design of the professional development programme relating to subject content matter and subject content knowledge. The six strands and research relating to their implementation follow.

Athletics. Broderick and Shiel (2000) report that when they surveyed teachers (N=74) surprisingly little emphasis is placed on athletics in the senior end of primary schools in Ireland. While the department of education in the United Kingdom (UK) reported that athletics was included in the summer term in many schools, this appears not to be the situation in Ireland (Broderick & Shiel, 2000). Between 2004 and 2009

there has been an increase of 12% (from 33% to 45%, N=1275) in frequency of participation in primary school children in athletics as part of their physical education time (Woods et al., 2010).

Aquatics. Broderick and Shiel (2000) report that thirteen per cent of time in physical education lessons in fifth class is given to aquatics where swimming facilities are available. Deenihan (2007) reports that seventy per cent (N=1,400) of Irish primary schools have access to swimming pools, but are unable to utilise them due to prohibitive costs. Issues of supervision, dressing and undressing and safety pose particular challenges for those teaching young children. Water safety issues may also be effectively addressed within the classroom and linked with Social, Personal and Health Education (SPHE). In a survey by the ESRI (Fahey et al., 2005), 53% (N=3833, from 5th and 6th class) of those surveyed undertook swimming as part of their physical education programme in that year. Woods and colleagues (2010) reported 50% (n = 648) of primary school children experienced swimming as part of their physical education programme during that academic year. Although, it may be reported that facilities are not available or inaccessible, more children are experiencing swimming, which requires specialised facilities, than are experiencing outdoor and adventure activities (11%), gymnastics (30%) or dance (43%) (Woods et al., 2010).

Dance. Practices in dance at the senior end of the Irish primary school suggest that only eight per cent of instructional time is given to the area (Broderick & Shiel, 2000). Surveying a similar age group ten years on, Woods and colleagues (2010) found that 43% of children reported participating in dance in physical education class. Teachers vary in their enthusiasm to teach dance (Wetton, 1988) and this may be due to a lack of understanding as to the nature of dance and the type of content which should be included in a dance programme. Davies (2001) concurs and believes that it is necessary to demystify the teaching of dance for teachers in order for them to become aware of its important contribution to children's education. Another factor which may impinge on the delivery of dance in the primary school is the level of enthusiasm required to teach this area.

Games. In Irish primary schools, the majority of instructional time in physical education classes is allocated to games (Broderick & Shiel, 2000). The reasons for this are many and varied, but a culture of games appears to be the most dominant force. Lockwood (2000) highlights that the situation is similar in Britain where games are

enshrined in the National Curriculum for Physical Education (NCPE) as a priority area. This curriculum emphasis coupled with the bias given by many teachers to games ensures that competitive team games are given high status in physical education. Worldwide there is a similar orientation towards games, particularly competitive games, discourse (Hardman & Marshall, 2005). Doherty and Bailey (2003) highlight that children themselves place a high value on games, but warn of the danger of placing games in a prominent position in schools and society. A wide range of skills development and experience in individual and small sided games are important as opposed to the disproportionate amount of time which is placed on major team games. Basketball (68%) and Gaelic football (64%) were the most common activities undertaken by both boys and girls in primary schools surveyed in the Children's Sport Participation and Physical Activity (CSPPA) study (Woods et al., 2010).

Gymnastics. On a global level, Hardman and Marshall (2005) report that the percentage of time devoted to gymnastics in primary schools is relatively high. Conversely, only ten per cent of instructional time is given to gymnastics in physical education lessons in fifth classes in Irish primary schools according to the teachers (N=74) (Broderick & Shiel, 2000). From 2004-2009 there has been an increase of 19% in frequency of participation in gymnastics by primary school children (Woods et al., 2010). This low percentage may be attributed to teacher's perceptions as to their own confidence levels in this strand area (Bunker, Hardy, Smith and Almond, 1994). Safety issues may also be a concern for teachers particularly when it comes to teaching specific skills such as forward and backward rolls and handstands. Furthermore, confusion may persist for some teachers as to what actually constitutes gymnastics in the primary school (Reynolds, 2000).

Outdoor and adventure activities. Outdoor and adventure activities (O&AA) is a relatively new area in physical education in Ireland. It became a strand in its own right in the 1999 curriculum, having appeared under the heading 'other activities' in the 1971 curriculum. The 1971 curriculum regarded 'outdoor activities of an adventurous nature…as an opportunity to promote a love of nature and qualities of leadership, courage and self-reliance' (Government of Ireland, 1971, p. 293). The merits of exposing urban children in particular, to these experiences of 'life in the open' were highlighted. Activities such as camping and water-based activities are commonly associated with this area. Martin (2000) describes activities such as these as 'outdoor pursuits' which require specially trained personnel. However, O&AA are defined as

those activities which the class teacher undertakes within the school during physical education classes (Martin, 2000). Using this definition it is clear to see how such an area is as applicable to infants as it is to sixth class. Perspectives in the 1971 curriculum suggested that senior pupils only should experience outdoor activities. This may be due to the fact that the activities specified were of the 'outdoor pursuits' type as opposed to school-based activities. The Physical Education Curriculum (Government of Ireland, 1999b) on the other hand recommends that much of the O&AA strand can take place in the school itself, particularly at infant level, where basic skills are taught. Martin (2000) agrees that the most dominant feature of O&AA for infants and older children alike is the adventure aspect, as the 'outdoorness' is not as crucial. Of all the strands, O&AA seems to fair the worst with 89% (N=1,135) of fifth and sixth class children reporting no exposure to the strand during physical education over the previous twelve months (Woods et al., 2010). One of the reasons why O&AA may not be taught is that of all the strand areas it is the one area where a teachers 'apprenticeship of observation' (Lortie, 1975) is of little help as few if any teachers would have experienced O&AA in school (or out). In the Irish colleges of education, the O&AA module, as part of the physical education undergraduate programme, only came into being in 2004.

In summary, it is apparent that there are a variety of areas of learning within the physical education curriculum for children of all ages. What appears crucial in terms of physical education is the concept of a breadth of activities rather than depth at this age. It is very evident, from the studies cited above, that children (especially those in the senior classes) are not receiving the recommended allocation of physical education time. We can also see that these children are not receiving a broad and balanced programme which would involve experiencing at least five if not all six strands of the curriculum over an academic year. Some improvements have been noted in recent research (Woods et al., 2010) and at primary level that there has been an increase in children's experiences of some of the strands. However, it should be noted that in these studies cross-sectional data are being used, so its purpose is to highlight trends, and not track children over time, therefore they do not provide accurate reflections of improvement in children's experiences. All studies reported above, which involve children, are based on the responses of children aged 10-12 years whereby it is assumed that they will have the ability to complete questionnaires and contribute to interviews. Children's comments on their experiences of physical education may also provide different information than if their teachers were asked. This limitation and the lack of

observational data do not allow for objective evaluations. These qualitative methods are expensive and time-consuming and require detailed training and accurate assessment tools. Establishing reliable research methods which can produce valid results from young children ensuring the entire primary school voice is heard and acknowledged, giving a more complete picture of the primary physical education landscape are warranted.

'Historically, elementary physical education programs have largely been left untouched by efforts to evaluate their effectiveness or to hold schools or teachers accountable for providing students with effective instruction' (Rink & Hall, 2008, p. 217). In the United States, it is only South Carolina (as of 2008), that has a comprehensive assessment program in primary physical education with 'legislated provisions for accountability at the school level' (Rink & Hall, 2008, p. 217). There is a dearth of independent evaluation of primary physical education practice in Ireland. Further research should be longitudinal, to establish how content and quality of physical education provision changes over time. This would provide a more comprehensive view of the status of physical education practice in primary schools. The issue of what is quality physical education also needs to be addressed. A recent study in the UK (Keay, 2011), evidenced best practice in physical education in 198 primary schools. When asked to qualify what they meant by best practice, the respondents (partnership development officers, teachers, coaches and local authority representatives from eight of the English regions) identified competition and extra-curricular activities as indicators of best practice. Whether these indicators can be considered best practice for 4-12 year olds is questionable and there is a danger that it just caters for the sporting or motor elite. Another indicator highlighted in the study, was having a broad curriculum, but the identified schools often focussed on specific activities. Child learning or achievements were not mentioned as quality indicators. There is a gap between perceptions of quality/best practice and what occurs in practice, and problems exist even where there are clear structures and performance indicators. Research is needed that will examine what is meant by quality physical education or best practice in primary physical education, and to what extent it is being achieved.

Teaching methodologies in physical education. Approaches and teaching methods in relation to physical education have changed considerably over time in many countries. For many years the purpose of physical education was to inculcate habits of obedience and discipline in children. In 1898 the report on Manual and Practical

Instruction in Primary Schools in Ireland identified rigid, highly structured and repetitive methodologies as the most desirable way to teach physical education to young children (Coolahan, 1981; Duffy, 1997). The primary motivation for physical education at the time was that it was an effective tool for disciplining children. Lambirth and Bailey (2000) point out that these excessively strict teaching methodologies engendered fear in many children and caused a negative attitude to physical activity in general.

Curaclam na Bunscoile (Government of Ireland, 1971) whole class instruction on physical drill was discarded in favour of an approach which allowed each child to develop at their own rate according to their individual ability. According to the Physical Education Curriculum - Teacher Guidelines (Government of Ireland, 1999c), one of the keys to successful teaching in the subject is the use of a broad range of approaches and methodologies. Mosston (1966) represents the most well-known framework of alternative teaching styles in physical education which has since been modified (Mosston & Ashworth, 1994) and studies since have confirmed that use of a range of teaching styles may enhance student achievement (Graber, 2001). The curriculum (Government of Ireland, 1999c), while acknowledging other teaching approaches, which it indicates are particularly suited to teaching physical education, highlights the direct teaching approach, and the guided-discovery approach. It also points out that schools, classes and teachers will vary and that some methods will suit particular circumstances better than others. The nature of the strands themselves will also require the use of various teaching approaches, both within and between lessons and strands. The curriculum points to the teachers' responsibility to choose the best style, approach or even a mixture throughout the lesson, to suit the needs of the learner.

In using the direct teaching methodology the teacher makes all, or most of the decisions concerning the content of the lesson with the child responding to instructions. MacFayden (2000) comments that this approach is effective as children are adept at copying what they see and so the teacher is guaranteed that correct methods are used. Furthermore, a direct teaching approach can help teachers to effectively control large or unruly classes (MacFayden, 2000; Pickup, 2005; Wetton, 1988). For safety reasons this approach also has merit as the children are provided with clear instructions as to how to use equipment and apparatus safely (Government of Ireland, 1999a; MacFayden, 2000, p. 43). However given the nature of development in children and their desire for exploration in physical activities, this approach may not be as suitable as others. According to Siedentop and Tannehill (2000) many physical education teachers spend a

lot of time talking and children spend a lot of time listening and waiting when in these classes children need to move. The direct teaching style can lead to too much teacher talking and the lesson can become very instructional where there is little teacher-child interaction. The child in direct teaching style has little or no independence or control over their learning, there can be very little cognitive development with this style. Most sports demand cognitive development and social learning limiting the use of this style for the subject of physical education (Mosston & Ashworth, 1994).

The guided-discovery approach incorporates elements of the direct teaching approach and the exploratory approach. It involves the teacher 'designing a series of questions that will eventually lead to one or more appropriate answers and ultimately the discovery of a particular concept' (Government of Ireland, 1999a, p.43). Wetton (1988) comments that while it appears that the children have discovered and learned the skills for themselves, the teacher identifies the skills beforehand and guides the children along. The role of the teacher therefore is to facilitate and shape movement experiences which, as Davies (2003) asserts, can result in children showing greater versatility, increased skilfulness and clarity of intent and outcome. The Physical Education Curriculum (Government of Ireland, 1999b) recommends this approach for the young child as they explore movement through informal play experiences. Teacher designed tasks or a task orientated approach is another methodology closely related to the guided-discovery approach. It involves the teacher setting a task and the children responding to it by moving in different ways. This approach allows children to be creative, to work at their own individual level and fosters a greater level of decision making on their behalf (Graham, 2008; Pickup, 2005; Wetton, 1988). These approaches require the teacher to be familiar with both the content and the pedagogical content knowledge to ensure the learning experiences of the child are maximised. As the child is in control of the activity it is imperative that the teacher can react to the variety of situations which may present themselves in a single class when using either of these approaches.

Ultimately, the key to the successful teaching of physical education is the use of a broad range of approaches, styles and methodologies (Graber, 2001; Graham, 2008; Hastie & Martin, 2006; Oslin & Mitchell, 2006) where 'an effective teacher is likely to switch and mix approaches to suit the objectives of the unit of work or the lesson' (Government of Ireland, 1999c, p. 42). Over the past number of years other styles and models for pedagogy, have become associated with physical education and particular aspects of physical education. For example, checking for understanding (Graham,

2008; Siedentop & Tannehill, 2000) is an instructional strategy to ensure understanding by the children during a lesson and in the teaching of games, 'teaching games for understanding', 'skill theme approach' and 'sport education' are three approaches or curriculum models highlighted in the literature (Bunker & Thorpe, 1982; Kinchin, 2006; Kirk & MacPhail, 2002; Oslin & Mitchell, 2006). When planning and designing a programme of professional development in physical education it is important to understand various approaches and methodologies and ensure that these align with any proposed lesson content in order for teachers to understand not only the content knowledge but also the pedagogical content knowledge associated with each of the strands of the physical education curriculum.

Conclusion. Physical education curriculum content design and supporting documentation for teachers in Ireland has evolved considerably over the last number of decades. However, aligned with these changes are the continuing challenges which teachers face in implementing these curricular changes such as not enough curriculum time, poor or inadequate facilities and resources, lack of time for pre-service and in-service education and the variety of contextual factors facing teachers within and between schools. For many reasons, least of all the current economic climate, there is a lack of investment in physical education by the government on a number of fronts, most importantly investment in the professional development continuum for pre-service to retirement for primary school teachers. Research needs to be carried out to establish which types of professional development teachers require and in what aspects of delivery of the physical education curriculum. Further research, on how best to provide this professional development, taking into account the barriers and challenges that remain in schools for the foreseeable future also needs to be addressed. We need to establish which professional development programmes provide the most positive outcomes, taking into account the challenges, imposed internally and externally, that face teachers in their work. This study is a step towards adding to this research field. Now that a picture of the context for undertaking professional development in Ireland has been presented, the literature on professional development needs to be examined to establish what professional development is and in turn professional development in physical education and how best it can be facilitated and evaluated.

Professional development in Ireland.

Developing teachers across the professional life-cycle has become a policy priority in many countries as can be seen from the Organisation for Economic Co-operation and Development (OECD) report 'Teachers Matter' (Organisation for Economic Co-operation and Development, 2005). Prior to designing any professional development programme, it is important to examine the professional development that already exists in that context (Wayne, Suk Yoon, Zhu, Cronen & Garet, 2008) and what professional development the teachers may have experienced in the past. Many types of professional development exist and are available to primary teachers in Ireland. Teachers in the study school may be participating in other professional development in subject or topic areas and this 'ambient PD' (Wayne et al., 2008, p. 473) may pervade the context in which the study is taking place. Although in the study school the chance of interference with the professional development programme under study is low and does not share common elements it is important to be aware of their existence. In order to understand the needs of teachers further, an overview of professional development for Irish primary teachers is required.

In Ireland the importance of developing teachers was highlighted as early as 1967,

> it is now generally recognised that the training of all categories of teachers cannot be regarded as concluded as the end of the normal training period…refresher courses must be regarded as an essential feature of the general provision for teacher training. (Government of Ireland, 1967, p. 235)

Collinson and colleagues (2009) point out that for far too long, ITE has appeared to be the 'end rather than the beginning' (p. 10) of a teachers learning. Internationally, educating teachers to the level that is required for a knowledge society, 'is seen as something that needs to happen over a number of years, extending well beyond the initial professional education phase, and which encompasses a wide variety of knowledge and experiences in supportive contexts' (Conway et al., 2009, p. xiv). The stages of a teacher's career demands different supports, therefore initial teacher education, induction and career long learning need to be inter-connected to create a more coherent learning environment for teachers and it needs to be integrated into a supportive framework (Organisation for Economic Co-operation and Development, 2005). In preparation for the 1993 National Development Plan, the DES sought over 35 million euro from the European Union (EU) fund to invest in teacher development, with

emphasis on improving management capacity particularly at school level (Sugrue, 2002) and a further 10 million was secured from the EU for the expansion and development of Education Centres. Recommendations were also made for future teacher developments; the establishment of a Teaching Council and the implementation of pilot induction/mentoring programmes (Killeavy & Murphy, 2006).

> The continuum of teacher education has traditionally been referred to internationally as the "three I's" of initial teacher education, induction and in-career development. The council is adopting another set of "three I's", namely innovation, integration and improvement which should underpin all stages of the continuum. (Teaching Council, 2010a, p. 8)

What is needed at each stage of the continuum will vary but what is vital is that the different parts of the continuum should not function in isolation from the others (Travers, 2006). Sugrue and colleagues (2001) insist that policy lags behind provision, a belief also to be found in Hardman (2008), 'the crux of the issue is that there is too much of a gap between the promise and reality' (p. 15). The Irish National Teachers' Organisation (INTO) (2004a) argued that policies and legislation in education will not enhance primary education in Ireland unless accompanied by commitments to allocate resources to the sector. This is particularly important for physical education where lack of resourcing is a major barrier to the implementation of physical education. There is the added issue in Ireland, whereby even if resources and infrastructure were available, the decentralised autonomy of education, whereby principals and boards of management are having increased autonomy in the finance and management of schools, may lead to further challenges if leadership in schools is lacking (Hogan, Brosnan, DeRóiste, MacAlister, Quirke-Bolt & Smith, 2007). Without the support of the principals for physical education and an understanding of its value, physical education will not achieve its potential in schools.

Coolahan (2007) writes that professional development was first given priority in the seventies, in Ireland, with the establishment of the regional Teacher Centres. Over the next twenty years the early momentum was lost due to economic difficulties and policy decisions (Coolahan, 2004). Coolahan (2003) saw the mid-nineties as a

> landmark in the historical development of continuing professional development in terms of acceptance by national government of its importance, putting in place an in career development unit (ICDU, now known as the Teacher Education Section - TES) to co-ordinate and promote it and the increased investment devoted to it. (p. 33-34)

Sugrue (2002; 2003) reports that in-service professional development is 'inadequate and poorly conceived due to lack of differentiation, that is sensitive to context and career stage' and that it is 'fragmented and lacking in coherence' (p. 211). There are no annual minimum professional development requirements for teachers in Ireland (Coolahan, 2007) and the Teaching Council (Teaching Council, 2010b) have admitted that when professional development courses are taken, the focus has often been on system reform rather than school or teacher needs. Although there has been an increase in the amount of in-school professional development, most professional development has taken place outside of school hours (Coolahan, 2003). According to best practice, the Teaching Council (2010b) state that time should be built into the normal work schedule of the teacher without compromising the school calendar. There is, however, constant pressure and concern from school management and principals that professional development should not 'erode the teaching-learning year for pupils' (Coolahan, 2003, p. 39).

The Teaching Council (2010b) recognises that 'teacher beliefs and practices are circumscribed by the prevailing culture' (p. 26) and they insist that there is a 'prevalence of professional insulation and isolation' (p. 26). Hogan and colleagues (2007) noted a strong reluctance when it comes to sharing positive innovations with colleagues, for fear that they would look like they were 'showing off, or as setting a standard that would show the work of colleagues in a poor light, or as attempting to advance their own careers at the expense of colleagues' (p. 34). This does not help in the current climate where future policy is directing that professional development is to be supported by teacher communities of learning (TCL), operating through the Education Centres. According to Clancy and colleagues (1994) 'there should be a variety of forms of in-service teacher education' and this should include 'an emphasis on school-based in-service provision and such courses should embrace 'the personal and professional needs of the teacher' (p. 87).

Physical education professional development provision in Ireland. The primary curriculum support program (PCSP) was established in 1998 prior to launch of the curriculum. The stated function of the PCSP was 'to mediate curriculum vis-à-vis schools and teachers to enable them to implement the curriculum' (Murchan, Loxley, Johnston, Quinn & Fitzgerald, 2005, p. 15). The first task of the PCSP was to facilitate professional development of school staff through national in-service which consisted of seminars and school-based planning days. The PCSP tutors were seconded for a two

year period to facilitate a professional development programme for teachers. These in-service seminars provided an introduction to the content and methodologies of each curriculum area. This points to subject and curriculum centred approach rather than a teacher centred approach, which goes against the characteristics outlined previously of both effective professional development and effective physical education professional development. Physical education was mediated over a two year period beginning in September 2004 and finishing in June 2006. During the first year teachers were provided with support in the strands of aquatics, games and outdoor and adventure activities. In the second year gymnastics, athletics and dance were introduced. The seminars introduced the key methods, context and methodologies for the subject as outlined in the curriculum. They were also a forum for experiential learning, teacher dialogue and the initiation of whole school planning for the implementation of the curriculum. Each subject was allocated two seminar days followed by two planning days over the two years. Given that the total contact time with teachers for all six strands of the physical education curriculum was just over ten hours (compared to the 130 hours which the tutors had spent on content and methodology (Murphy, 2007)), these seminar days only constituted the beginning of a process whereby schools introduce and begin to implement curricular change. The seminars were held off site for whole school staffs allowing for little or no contextual impact, and in the case of teachers there was very little, if any, breakdown of content particular to each class. Teachers were given an overview of the physical education strands and some sample lessons were carried out with the participants. The style of professional development of the in-service is in contrast to that preferred in the literature, however, feedback from teachers at the time was favourable (De Paor, 2007; Murchan et al., 2005; Murphy, 2007; Seoighe, 2005). Further research needs to be carried out to establish the impact of the national in-service on the teaching of physical education a number of years later. The PCSP developed a web site (www.pcsp.ie) that provided teachers, parents and boards of management details of the organisation of professional development support and the content of seminars for all subject areas. The web site also provided templates for planning and exemplars of methodologies that could be downloaded and used in school and classroom context. The physical education section of the PCSP website was the only subject area to contain resource materials for the teaching of each of the strands, for each class. Research is also needed to assess the level of support that these curriculum specific on-line resources provide to teachers.

An essential component of the PCSP was the Regional Curriculum Support Service or Cuiditheoirí Service (RCSS). Cuiditheoirí (Irish for helper) followed on from the PCSP personnel who were involved in national in-service, these personnel offered their services to schools in a variety of ways including visiting schools and advising teachers on the implementation of particular areas of curriculum strands. They provided teachers with useful sources of information in relation to resources and teaching materials and they facilitated networking between schools. They provided support for whole school and classroom planning and organized additional in-service courses for teachers through the Education Centre Network. The support service modelled best practice, however the number of trained personnel had been reduced (N=14) and provision of support for approximately 26,000 teachers in physical education was worrying in terms of supporting real change in the teaching practices of teachers at a national level (Murphy, 2007). Hustler and colleagues (2003) sampled a large number of teachers in England and although these teachers were satisfied with professional development they were critical of the 'one size fits all' nature of the professional development provision. This 'one size fits all' type of professional development was the model used during the roll out of national in-service of The Primary Curriculum (Government of Ireland, 1999a) and the courses rarely related to the context to which the teachers were returning.

The School Development Planning Support (SDPS) initiative was established in 1999 to promote school development planning in primary schools. The SDPS supported schools in the process of formulating a school plan that articulated the educational philosophy of the school, its aims and how it proposed to achieve them. The Primary Professional Development Service (PPDS) came into being in 2008, when the former Primary Curriculum Support Programme (PCSP) and School Development Planning Support (SDPS) amalgamated, thus initiating the creation of a single support service for the primary sector. The PPDS operated under the Teacher Education Section of the Department of Education and Science, and its core work was to provide continuing professional development for primary school teachers. Its overarching aim was to support schools as professional learning communities, in which teachers' professional development is closely linked to school development and improvement in pupil progress. During the academic year 2009-2010 a total of 1,835 primary schools were supported by the PPDS, with only 145 schools requesting support in physical education and 34 of those schools indicated that this was a number one priority, in a

priority list of five (Primary Professional Development Service, 2010). One of the forms of support provided was through six workshops that year which 46 teachers attended. In 2006, the PCSP had 26 trained tutors whose sole responsibility was physical education. By 2009, this had been reduced to nine and their remit had expanded to include Social, Personal and Health Education (SPHE) with five of the team involved in delivery of child protection seminars and three members provided support to *Stay Safe* targeted schools. Even though a limited number of teachers, in a small number of schools availed of this opportunity, modelling of outdoor and adventure activities, dance and gymnastics was the most popular form of support requested (Primary Professional Development Service, 2010), lending support to the inclusion of this type of professional development in any programme design.

In 2010 the Teacher Education Section (TES) issued a notice to the teacher support services stating that a re-conceptualisation of school support provision, 'a new generic and integrated cross-sectoral support service,' (Primary Professional Development Service, 2010, p. 150) the Professional Development Service for Teachers (PDST) would operate from September 2010. The TES stated that support would be provided regionally by multi-disciplinary teams who would work in close co-operation with the Education Centre Network to respond to school-identified needs and national system priorities. This support by multi-disciplinary teams, amalgamated to provide services to both primary and secondary schools.

Reports speak favourably of each of the groups and their provision of professional development support (De Paor, 2007; McHugh, 2008; Murchan et al., 2005; Murphy & O'Leary, 2008), but the fact still remains, in the case of primary physical education since 2004/2005, there have been four organisational changes. Following each organisational change the number of physical education advisors either reduced or their role in physical education support diminished. As changes in policy and changes in professional development focus moved on, teachers and schools had to move with the wave of change and the in-service provision that was the focus in any particular year. Teachers were being left with very little time to reflect on any new found knowledge, gained through nationally provided in-service or follow-up support, or to consolidate learning through teaching, reflection and discussion with their colleagues and pupils.

Services, even if minimal, were provided to support teachers, however, these were not availed of, with only 34 schools and 46 teachers, out of a possible 3,197 schools and over 27,000 teachers, requesting and receiving professional development in physical education. It cannot be assumed that this was due to the fact that teachers felt confident to teach the content of the subjects of the new curriculum following national in-service, but rather that it is a reflection of the curricular reform and national in-service which was still on-going.

The Irish National Teachers' Organisation (INTO) and professional development. Primary teaching in Ireland is highly unionised with 98% of teachers members of the INTO (Coolahan, 2003). The INTO is the only trade union for primary teachers and represents over 31,500 teachers in the Republic of Ireland, and has done so for the past 130 years. It claims, 'always to be at the forefront of change and has often sought change in order to enhance teaching and learning in schools' (Irish National Teachers' Organisation, 2004a, p. 1). The INTO has ready access to the Department of Education and Skills and although there may be differences of opinions at times, there are good relationships between the personnel involved, and the INTO participates fully in all dealings regarding primary teaching (Coolahan, 2003).

The INTO state that the investment made by the government at pre-service level should be maximised and built upon with the provision of a comprehensive programme of induction leading onto continuing professional development (Irish National Teachers' Organisation, 2004a). The INTO believes that lifelong professional development opportunities should be 'an expectation for all teachers' (p. 69). The INTO also recognise the complexity involved in providing professional development opportunities for over 20,000 teachers, in diverse geographic conditions with varying teacher and school needs. Following dissemination of a Professional Development Needs Analysis questionnaire in 2005, the INTO found that a high percentage of teachers regularly undertake professional development voluntarily, underlining their commitment to professional learning. A total of 75% (N= 706) of respondents had undertaken professional development, not related to the primary curriculum in the previous three years (Irish National Teachers' Organisation, 2006) and 57% of these were through summer courses and 21% were accredited courses leading to postgraduate qualifications. Funding for school related professional development was the remit of the Department of Education and Science, according to 83% of respondents, and the

majority of respondents (70%) preferred that professional development occur during school time.

The INTO also highlight that alongside funding 'time for planning must become an integral part of the school timetable. And schools must continue to have access to support and advice as required' (2006, p. 1). The INTO recognise that there are increased opportunities for teachers to engage in professional development activities but relatively little time allowed to engage with these opportunities, with many of the opportunities provided outside of school hours. It maintains that 'one of the most pressing requirements is the need to develop comprehensive and high quality in-service training. This training must be broad enough to cover all aspects of change and deep enough to cover them accurately' (Irish National Teachers' Organisation, 2004a). The INTO have been lobbying for a National Framework for Professional Development for a number of years. This framework would meet,

> system, school and individual needs and address the issues of funding, time and accreditation. A variety of approaches… needs to be facilitated…in-school days, off-site seminars, summer courses, evening courses, certificate, diploma and masters courses, online courses, sabbatical leave and study leave. (Irish National Teachers' Organisation, 2006, p. 37-38)

The INTO are well organised and have a very strong say in policy issues sometimes requiring protracted negotiation (Coolahan, 2003), however the fact remains that they are the main trade union representing Irish primary school teachers. The INTO are one of the main providers of professional development opportunities for teachers and although teachers complete formal evaluation forms which 'testify to their re-energising effect and the fresh sense of direction it gives their work' (Coolahan, 2003, p. 60), these professional development opportunities have not been scrutinised by any independent evaluation.

Section Two

Professional Development

Professional development is known by many terms in the education literature including teacher development, in-service education, staff development, career development, continuing education and lifelong learning. These terms are explained differently by different people and also have overlapping meanings. Ward and Doutis,

(1999) noted that terms such as staff development, professional development and in-service education are used interchangeably generally to suggest actions or activities aimed at improving teachers' practices and beliefs associated with educational improvement. Day (1997) proposed the following definition taking into account the thoughts of Fullan (1995) and Hargreaves (1995):

> Professional development consists of all natural learning experiences and those conscious and planned activities which are intended to be of direct and indirect benefit to the individual, group or school and which contribute, through these, to the quality of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues through each phase of their teaching lives. (p. 4)

In a simpler definition, professional development can be described broadly as all formal and informal learning that enables people to improve their own practice (Earley & Bubb, 2004). In the case of teachers, professional development is 'any activity which enhances their knowledge and skills and enables them to consider their attitudes and approaches to the education of children, with a view to improve the quality of teaching process' (Bolam, 1994, p. 8). At the core of all types of professional development is the understanding that it is about teacher learning, transforming their knowledge into practice for the benefit of the children they teach.

A characteristic of many professions is to learn throughout one's career. Professional development starts with teachers' initial teacher training and continues systematically to promote growth and development throughout a teacher's career to retirement (Conway et al., 2009; Villegas- Reimers, 2003). It is recognized that there are two beneficiaries of this commitment to learning, the person undertaking the education (teacher) and the person receiving the benefits of this education (pupil) (Guskey, 2002b). There is growing evidence for, and recognition of, the importance of professional development in equipping educators to meet the challenges faced by today's schools. Education is constantly changing and primary schools need well informed and highly motivated teachers (Corcoran, 1995; Darling-Hammond, 2000; Guskey, 2003; Raymond, 1998). Knight (2002) states that;

> continuing professional development is needed because initial teacher education cannot contain all of the prepositional knowledge that is needed and certainly not that procedural, "know to" knowledge which grows in practice. Normal

> changes as when a syllabus is altered…demand development….teachers are now expected to embrace life-long learning. (p. 230)

It is important to note here, that the current interest in continuing professional development activities world-wide does not point to deficiencies in the teaching workforce but rather the vast changes that are occurring, that teachers have to contend with in their daily lives, for example advances in technology and economic conditions affecting resources (Villegas-Reimers, 2003). Provision of, as well as critically examining the effectiveness of, professional development practices are therefore important to ensure the success of our education system.

Features of professional development. There is some agreement that no single approach to professional development will be effective for all teachers all of the time, instead a variety of learning experiences is required (Fishman, Marx, Best & Tal, 2003a). Lifelong learning or the continuing professional development of teachers is important. Much of current provision falls short of what is required, or cannot cope with the scale and complexity of the task (Sugrue, 2002). Professional development literature, in the main, focusses on the effective features of professional development and these provide an evidence base in the current study for considering what is required when designing a professional development programme so that it might ensure success. Although physical education is orientated to the development of the body and mind, it approaches learning through the body, through movement, exercise, play, sport and dance, unlike academic subjects which deal mainly with the development of the mind. Together with the differences in the social organisation of the classroom, which result from the ecology of gyms, open fields or school yards, as opposed to regular classrooms, create very different professional development needs for the teacher of physical education. As context and teaching methodologies are very specific for the teaching of physical education, compared to other subjects such as Mathematics or English, this makes the job of facilitating effective professional development a challenge for all providers. All this coupled with the fact that this is only one of the subjects that the primary generalist teacher must contend with, classifies these teachers as having very special and specific professional development needs.

Both Wayne and colleagues (2008) and Desimone (2009) state that there are core features of effective professional development which should be included in professional development programmes and tested to allow us understand their

importance. Desimone (2009) identifies content focus (activities that focus on content have been proven to increase teacher knowledge), active learning (observing experts or being observed, feedback and discussion), coherence (learning is consistent with teachers' beliefs and school policy), duration (sufficient time spent on activity and the activity spread over time is required), and collective participation (teachers from the same class grouping, school or area to allow for interaction and discourse) as the five critical features of professional development (p. 184). The following section explores these features.

Content. Enhancing teachers' content and pedagogical knowledge is a key feature of effective professional development (Betchel & O'Sullivan, 2006; Cordingley, Bell, Evans & Firth, 2003; Desimone, 2009; Fishman et al., 2003b; Garet, Porter, Desimone, Birman & Yoon, 2001; Guskey, 2003; Maldonado, 2002; Organisation for Economic Co-operation and Development, 2005). Defining knowledge and its constituents is a complex task and is dependent on context and individual interpretation. In 1987, Shulman identified a list of seven sorts of essential knowledge for teachers (Knight, 2002; Lund, Metzler & Gurvitch, 2008):

1. Content knowledge
2. General pedagogical knowledge
3. Curriculum knowledge
4. Pedagogical content knowledge - a 'special amalgam of content and pedagogy …[teachers'] own form of professional understanding.' (Shulman, 1987)
5. Knowledge of learners and their characteristics
6. Knowledge of educational contexts
7. Knowledge of '…educational ends, purposes, and values and their philosophical and historical grounds' (Schulman, 1987)

The category given most attention in the literature and in research is that of pedagogical content knowledge. Cochran and colleagues (1993) propose the term pedagogical content knowing, which is defined as 'a teachers integrated understanding of four components of pedagogy, subject matter content, student characteristics, and the environmental context of teaching' (p. 266). Teachers must have a rich and flexible knowledge of the subjects they teach (Borko, 2004). Without basic subject content

knowledge how can teachers adapt and use this knowledge (pedagogical content knowledge) for the benefit of the children they teach?

In her study of 25 primary school teachers in New Zealand following a programme of physical education in-service, Petrie (2009) demonstrated that the teachers' confidence and motivation to teach physical education was enhanced thus benefitting from the learning opportunities which were afforded them regarding physical education pedagogical knowledge. However, her findings showed that these teachers also needed to balance these opportunities with opportunities to develop their content knowledge. Faucette and colleagues (2002) found that in a study with 16 primary school teachers over a two year period (Project SPARK) that prescriptive professional development, focussing on content knowledge, can work and also that in spite of teacher concerns, teaching improved. The aim of the professional development, which was very prescriptive focussing on content knowledge, was to promote high levels of physical activity for fitness and sports skill development. A total of 26 hours of physical education professional development support was provided to the study teachers over the two year study period.

Keay and Spence (2010) reported that resource-led CPD has 'the potential to extend the learning of classroom professionals and make significant impact on improving the learning of the children in their classes' (p. 38). If resources are to be included in the design of the professional development programme, their usefulness and applicability to the teachers' and school's contexts will be important. Teachers will also have to be given the opportunity to try out any resources provided with the children in their classes and opportunities to adapt and change the resources provided in order to meet the children's learning needs. Petrie (2009) challenges professional development providers to find ways to use resources which support teachers to become independent practitioners, who avail of expert advice but do not become dependent on them. Care must be taken to ensure that teachers do not become deskilled through using prescribed materials and provided resources and this must be considered in the design and facilitation of the professional development programme.

Active learning. According to Day and Sachs (2004), professional development has changed over the past 20 years from school-focused professional development to a more sophisticated approach taking into account school culture, work-based learning and professional learning communities. Desimone (2009) describes the change as

moving from discrete activities (such as workshops, conferences and courses) to conceptualising professional development as situated and cognitive views of learning through interactive and social means, based in discourse and community practice. This type of embedded professional development, directly related to teaching, can take many forms such as mentoring, co-teaching, reflecting on lessons, provision of materials, self-examination or even designing new curricula (Desimone, 2009).

Professional development must provide teachers with opportunities to actively engage in relevant tasks (Armour, Makopoulou and Chambers, 2008; Darling-Hammond and McLoughlin, 2011; Day, 1999; Garet et al, 2001) where they are supported and given feedback. These opportunities may cause their self-efficacy to heighten which will make them feel good about themselves and their teaching (Cordingley et al, 2003; Guskey, 2003; Maldonado, 2002).

Coherence. For years, educators and education researchers have lamented the fact that the majority of professional development is delivered to teachers in the form of in-service workshops. These one to three-day workshops are presented by content area specialists such as college lecturers, teacher unions, education centres and independent consultants (Conway et al., 2009; Darling-Hammond, 2000; Guskey, 2000; Irish National Teachers' Organisation, 2006). There is criticism of these in-service workshops for failing to have lasting effects and for leaving teachers feeling unprepared for the classroom (Darling-Hammond, 2000; Fullan & Steigelbauer, 1991; Guskey, 2000; Guskey, 2003; Knight, 2002; Sugrue et al., 2001; Sugrue, 2004). The major criticism of this type of professional development is that the content of the session is externally imposed and teachers' real needs are not taken into consideration in the programme design. This comment is espoused by Ward and Doutis (1999) who state that the purpose of these half/one day workshops is to teach something new or current, after which, teachers are expected to be sufficiently motivated and trained to modify their teaching. The workshops are also distanced physically and conceptually from what happens in the classroom, as they occur away from schools and without children present in most cases.

Professional development that is integrated into the daily life of the school, that is aligned with classroom conditions, school contexts and teachers' daily experiences (coherence), is more likely to produce enhanced knowledge and skills (Armour & Duncombe, 2004; Armour & Yelling, 2004b; Cochran, DeRuiter & King 1993; O'

Sullivan & Deglau, 2006; Pope & O' Sullivan, 1998; Timperley, 2008). Differentiating the professional development for the needs of individual teachers gives teachers a sense of ownership and gives them the opportunity to build on previous knowledge (Armour & Yelling, 2007; Betchel & O' Sullivan, 2006; Cordingley et al, 2003; Garet et al, 2001; Guskey, 2003; Maldonado, 2002). Teachers want support for themselves in their own situations. This may not be the most cost effective method of professional development but if this is what teachers report would be the most beneficial to them, and may produce the outcomes providers wish to achieve, then research must investigate all aspects of such professional development provision.

As context is very specific for the teaching of physical education, compared to other subjects such as Mathematics or English, this makes the job of facilitating effective professional development a challenge for all providers. Contexts within Irish primary schools are so varied the nuances of the varying contexts alone make it difficult to take into account the confines of a one size fits all programme. All this coupled with the fact that this is only one of the subjects that the primary generalist teacher must contend with, classifies these teachers as having very special and specific professional development needs.

Duration. A common criticism of professional development activities for teachers is that they are too short and offer limited follow-up, if any, for teachers. Professional development activities are more likely to be effective when they are sustained and intensive and are more likely to contain learning opportunities necessary for teachers to integrate new knowledge into practice (Cordingley et al, 2003; Garet et al, 2001; Maldonado, 2002). This on-going support, sustained over time, should include continual follow-up and support for future learning (Day, 1999; Parker, Patton, Madden & Sinclair, 2010; Ward, Doutis, & Evans, 1999). Research has not indicated an exact saturation level for professional development, but does show support for activities that are spread over a term and include at least 20 hours of contact time (Desimone, 2009). The desire for more time comes with a caution however. More time might not always translate into improved student outcomes (Timperley, Wilson, Barrar & Fung, 2007).

Collective participation. Collective participation refers to professional development in which teachers participate alongside their school colleagues. Research suggests that when teachers make extensive use of collaboration they are particularly successful in promoting implementation as they have more authority when they are

embraced by peers (Bryk and Schneider, 2002; Cordingley et al, 2003; Darling-Hammond & McLoughlin 2011; Guskey, 2003; Hipp, Huffman, Pankake & Olivier, 2008; Maldonado, 2002). These interactions amongst teachers, when socially constructed through situated learning, can also be seen as a resource to support teachers to implement their new knowledge (Pedder, James & Macbeath, 2005; Penuel, Frank & Krause, 2006, Whitcomb, Borko & Liston, 2009). Although teachers welcome the opportunity to talk and discuss teaching, discussions rarely centre on critical examination of teaching (Putman and Borko, 1997).

When whole schools engage in collective participation in professional development it brings many benefits including opportunities to relate to individual teachers and tailor any support to specific concerns, questions and needs they might articulate. Garet and colleagues' (2001) study supported the idea that collective participation of groups of teachers from the same school, subject, or grade is related both to coherence and active learning opportunities, which in turn are related to improvements in teacher knowledge and skill and changes in classroom practice. It can also build trust and support relationships and can help teachers motivate each other through any problems they may encounter (Little, 2003).

If learning is socially constructed the idea of a community of practice reflects what happens when a group of people come together (collective participation) to engage in learning in an area of interest. Participation in a community of practice according to Lave and Wenger (1991) 'refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of active participants in the *practices* of social communities and constructing *identities* in relation to these communities' (p. 4). Lieberman and Miller (2008) concluded following their research that 'professional learning communities … hold the promise of transforming teaching and learning for both educators and students in our schools' (p. 106). However research reveals that developing teaching communities can be difficult and time consuming (Borko, 2004).

Other effective features outlined in the literature include model type (Maldonado, 2002) and evaluation (Guskey, 2003; Maldonado, 2002) both which are discussed in detail later. The concept of partnerships, as an effective feature, has been discussed and supported, in the physical education professional development literature (Ha, Lee, Chan & Sum, 2004; McKenzie, 1999; O' Sullivan, Tannehill, Knop, Pope &

Henninger, 1999; Parker et al, 2010) to promote the development of quality physical education. The external experts must work in collaboration with the teachers and school community acknowledging that each bring 'separate but complementary bodies of knowledge' (Ross, Rolheiser & Hogaboam-Gray, 1999) to the partnership. A benefit of collaboration partnerships is their impact on teachers' self-efficacy (Cordingley et al., 2003). Cordingley and colleagues point out that external experts regularly modelling new techniques and supporting teachers through on-going coaching and mentoring support helped embed the professional development in the teaching contexts of the teachers. The current research study was built as a partnership between a college of education and a school, more specifically the researcher, a lecturer in primary physical education, and the teaching staff and children of the study school. Although teachers especially generalist classroom teachers, cannot be expected to be an expert in every area of the curriculum, it is important that we do not believe that teachers need experts coming to their rescue for everything and the teachers begin to look incapable of teaching.

Conclusion. This study took cognisance of the international research findings on features of effective professional development and this explains some of the design features that were put in place in the PDP at the centre of this study. The current study proposes to include all teachers in the case study school and each teacher may be very different and learn very differently, therefore it would be unwise to exclude any 'effective feature' at this early stage of development. Guskey (1994; 2003) argues that an optimal mix of professional development needs to be found for each teacher and school:

> There is no right answer to the best way. Rather there are a multitude of ways, all adapted to the complex and dynamic characteristics of specific contexts. Success therefore, rests in finding the optimal mix of process elements and technologies that can then be carefully, sensibly, and thoughtfully applied in a particular setting. (p. 10)

This study will provide additional insight into the features of effective professional development. Consequently, the following definition of effective professional development (author inserted features, outlined in italics), which contains many of the effective features outlined in this section, is the definition which will inform the design of the professional development programme;

> focus on clearly articulated priorities (*coherence*), provide on-going (*duration*) school-based (*contextualised*) support to classroom teachers (*collective participation in active learning),* deal with subject matter content (*content focused*) as well as suitable instructional strategies and classroom management techniques, and create opportunities for teachers to observe, experience and try new teaching methods (*active learning*). (Organisation for Economic Co-operation and Development, 2005, p. 129).

Models of Professional Development. When one is attempting to expand the knowledge base through professional development interventions, one must be mindful of how to communicate the intervention through various methods of instruction. How the instruction is given to the teachers involved varies in professional development programmes. Researchers over time have proposed a variety of models of professional development including partnerships, apprenticeships, technocratic, competence based, input/output, linear, collegiate/community of learners, train the trainers and interactive/interconnected approaches (Castle, Hallaway and Race, 1998; Harland and Kinder, 1997; Flint, Zisook & Fisher, 2011; Ling and McKenzie, 2001). Maldonado's review of 5 successful programmes of professional development (2002) identified some effective models (a) the training model places the teacher in the role of student, (b) expert trainers model effective teaching for teachers (c) the observer/assessment model provides teachers with the opportunity to be observed and to receive feedback based on these observations and (d) the individually guided model puts teachers in control over their learning experiences. A review by the Teaching Council in Scotland (2006) stated that no one model of professional development was shown to be most effective and they also pointed out that professional development of teachers should emulate medicine and become workplace based and delivered by practicing members of the same profession.

Three models which informed the current study's method of instruction were Cafferella's Interactive Model of Programme Planning (Caffarella, 2002), Joyce and Showers' Model of In-service Education and Training (INSET) (Joyce & Showers, 1988) and cognitive apprenticeship (Collins, Brown & Newman, 1987; Collins, Hawkins & Carver, 1991). How each model was applied to the intervention design is explained in detail in chapter five. Much of the writing on the creation of professional development models calls for a three stage process (a) a needs assessment, (b) planning and delivery and (c) evaluation (Murphy, 2007). While Rose (1997) reported that there was a trend towards adoption of a contextualised approach to research and planning, Mills and colleagues (1995) although agreeing that context was important, pointed to

the fact that the context itself may define how decisions are arrived at during programme development.

The importance of context is one of the considerations highlighted by Cafferella (2002). Cafferella drew on the characteristics of other programmes (28 in total alongside literature on how adults change and learn and her own personal experience) with the key implications in her planning being that context is of vital importance. Her model of programme planning allows a number of components to be addressed simultaneously and has the flexibility to allow the components of the programme to adapt and change as demanded by the context and/or participants. Caffarella points out that her model should only be used 'as a guide, not a blueprint for practice' (p. 21). Cafferella's model is based on four assumptions; that the professional development programme should focus on what participants need to learn and what change this learning might bring about; that programme development is a complex interaction of priorities, tasks, people and events; the people involved may require all or only some of the components of the model and the programme designers need to be ethical. This model was a valuable resource, aligned with the literature on effective professional development, in creating a programme planning framework as it focuses on people, their learning, how their learning may bring about change in their organisation or practice and ultimately it allows for flexibility. As with any model of programming, due to the changing nature of adult learning and the contexts in which they live, work and learn, programmes are constantly adapting and changing, therefore the flexibility and guiding nature of this model allows for these changes and to ensure coherence for the teachers.

The INSET model advocated by Joyce and Showers (1988) although devised over 20 years ago is applicable in the context of this research. They suggest that in order for teachers to bring about change to their teaching, a combination of the following five pedagogical practices, are necessary:

1. Presentation: formal communication of information and theory
2. Modelling: watching demonstrations
3. Simulated Practice: trying out new skills in controlled conditions
4. Feedback: discussion and reflection on outcomes of the above
5. Coaching for application: support while practicing the new skill

The INSET model can be summarized as (a) introducing new theory or techniques; (b) demonstrating their application; (c) practice; (d) feedback; (e) coaching. In brief, this may form a very basic model of the professional development whereby teachers receive the information, they are shown how to teach the content, teachers have a chance to practice the teaching themselves at a later date with researcher providing feedback and further coaching as necessary. However, on its own this model has some flaws. It violates the active learning and contextualised criteria that serve as two of the features for this study's professional development programme. It is a very direct style and it is assumed that the introduction and demonstration is facilitated away from the school context and teachers have to be able to adapt the new pedagogical content knowledge to their own environment. The two components to be taken from Joyce and Showers' model are (a) modelling, which was identified by teachers as their preferred method of learning, when done in their school, with their class and (b) feedback which will allow for discussion on teaching and learning as well as providing opportunities for reflection. These active learning related components will be incorporated into the programme framework for this study.

Both models of programme planning, align well with the theory of cognitive apprenticeship, therefore it will be explained here briefly in the context of programme planning and design. Constructivist theories of learning have provided evidence that learners are not passive slates on which information is written. Rather, learners actively construct their understanding of the world by contrasting new information with their current knowledge (Driscoll, 1994). Constructivist approaches to human learning have led to the development of a theory of cognitive apprenticeship (Collins et al., 1987; Collins et al., 1991). This theory holds that masters of a skill often fail to take into account the implicit processes involved in carrying out complex skills when teaching novices. To combat this tendency, cognitive apprenticeships '…are designed, among other things, to bring these tacit processes into the open, where students can observe, enact and practice them with the help from the teacher…' (Collins et al., 1987, p. 4). This approach is supported by Bandura's (1997) theory of modelling, which presumes that in order for modelling to be successful, the learner must be attentive, must have access to and retain the information presented, must be motivated to learn and must be able to accurately reproduce the desired skill.

Cognitive apprenticeship can be used whenever someone who can perform the task to be learned, can model it in real life. Learners can then be helped to try what has

been modelled with coaching (LeGrand Brandt, Farmer & Buckmaster, 1993). Like traditional apprenticeships such as electrician and carpenter, whereby an apprentice learns a trade by working under a master teacher, cognitive apprenticeships allow the master to model behaviours in a real world context by means of cognitive modelling (Bandura, 1997). By listening to the master explain exactly what she is doing and thinking as she models the skill, the apprentice can identify relevant behaviours and develop a conceptual model of the component processes involved. The apprentice than attempts to imitate the behaviours with the master providing coaching and this individualised coaching provides assistance at a critical level – the skill level just beyond what the teacher could accomplish by him/herself. As the apprentice becomes more skilled the master decreases the support they provide until the apprentice is independently performing the skill (Johnson, 1992). During or immediately following the behavioural modelling the master articulates what she has done and why – this may be purely a description of the action or the strategies the facilitator used in carrying out the activity. Therefore when using cognitive apprenticeship, teachers are further scaffolded in their learning and their teaching should not become just a behavioural replica of the master. This scaffolding also allows for further feedback and discussion on the apprentices' teaching which is also a process espoused by Joyce and Showers (1998) in their model of effective professional development programme models.

Part of the effectiveness of this apprentice model is due to the fact that the learning is contextualised. At this stage of the apprenticeship, the teachers are practicing teaching on their own (self-directed learning) and request the help of the facilitator only when necessary. According to Brown and colleagues (1989), 'situations might be said to co-produce knowledge through activity. Learning and cognition, it is now possible to argue, are fundamentally situated' (p. 32). Researchers maintain that that repeated exposure to information over time, as opposed to all at once, builds stronger memory associations. Taking into account social constructivist learning theory and research findings on effective professional development, it could be argued that where teachers are able to learn together in a supportive context, effective professional development is facilitated. This is further highlighted by Armour and Duncombe (2004), when they suggested that 'CPD providers need to be able to tailor their activities to teachers' very specific needs and the exigencies of individual and schools contexts' (p. 9).

These three models informed the design, operation and instructional strategies of the professional development programme for this study and are aligned with the key features of effective professional development underpinned by social constructivist theory. They also 'identify the variables that mediate (explain) and moderate (interact or influence) professional development's effects (Desimone, 2009, p. 184). Further detail of how the pertinent characteristics from each of these models are incorporated into the programme content, operation and instruction are outlined in chapter five.

Teacher Change

Professional development is comprised of and dependent on two theories: theory of instruction (this has been explained in the previous section and is operationalised in chapter five) and theory of change (Wayne et al, 2008). This section will deal with theories of change that have informed professional development practice and research. Bowring-Carr and West-Burnham (1999) stated that the only answer when faced with continuous change is to keep learning. Change for teachers involves more than just enhanced knowledge; it requires 'a belief in the process itself and recognition that renewal and development are essential' it holds that 'new behaviours and practices, and ultimately new beliefs and understandings' (Government of Ireland, 1999a, p. 62). Fullan (1991) has written extensively on educational change and coined the phrase, 'change is a process, not an event' and suggested that 'educational change is technically simple and socially complex.' Fullan (2001) also noted that 'educational change depends on what teachers do and what teachers think – it's as simple and as complex as that' (p. 115). For some teachers change is a slow and uncertain process with some elements of teachers' knowledge and practice more easily changed than others through professional development programmes (Franke, Carpenter, Levi & Fennema, 2001). Avalos (2011) stated that cognitive theory and research have unveiled some of the factors, such as how the role of beliefs and the perceptions of self-efficacy can support or hinder change. From his research he found that diverse forms of professional development have effects of some kind but unfortunately we know little about the degree to which these efforts are sustained, though the more prolonged the professional development intervention the more effective.

Approaches to teacher change. Moffett (2000) reviewed a number of studies where external and internal change agents or facilitators are essential for supporting schools as they 'navigate the labyrinth of change' and point towards the fact that the

presence of a facilitator contributed to increased confidence, personal mastery and ownership of the change process in a school staff. A change agent is someone who influences others to adopt an innovation within an organisation (Metzler, Lund & Gurvitch, 2008). Rodgers (1995) describes two processes involved in moving an innovation into practice or thought: adoption or diffusion. Adoption occurs when one or more individuals move along a path from first becoming aware of an innovation to the regular usage of that idea or practice. Diffusion occurs as an innovation spreads from introduction to wide usage among members of the same social system. A social system in the case of the current study, and from a social constructivist perspective, could be defined as a group of teachers who share similar expertise and job responsibilities, and apply them in similar settings i.e. their classrooms. Teachers control diffusion, adoption must precede diffusion within a social system. According to Hargreaves (1994), if teachers don't like change, don't understand it, don't think it is practical or don't agree with it, then change will be implemented incompetently, insincerely or not at all.

Fullan (2006) in writing about approaches to teacher change wrote about seven premises which underpin change theory. The premises are those he deems necessary to design strategies of instruction which elicit results. These premises are related to the key features of effective professional development (*in italics*). They are as follows: i) motivation (*active learning and coherence*); ii) a focus on results (*content*); iii) learning in context (*active learning, coherence and collective participation*); iv) changing context (*coherence*); v) reflective action (*active learning and collective participation*); vi) tri-level engagement (*collective participation and coherence*); vii) persistence and flexibility to stay the course (*duration*). To bring about change the instruction strategy must motivate the teachers which may not be there initially but can be established over time. Kabylov, (2006) notes that pressure is often necessary to encourage change particularly among those who are less willing to change. He goes one step further to say that support provides encouragement, motivation and nudging that many practitioners require and this is needs based. This point is supported by the INTO (2004a) and Guskey (2002b) when he says 'both pressure and support are necessary ingredients of success. Untapped competence can surface and flourish in this environment' and 'support coupled with pressure is essential for continuing educational improvement' (p. 388). This study aimed to develop teacher content and pedagogical content knowledge, including providing resources and to bring about organisational

change where necessary. Learning in context, as well as a key feature, is also an instructional strategy which informed the professional development programme in this study. According to Elmore (2004), those involved in professional development need to be cognisant that as learning occurs in context, the learning context itself is in a constant state of change. Randi and Corno (1997) contend that 'change is not simply a matter of implementing innovations' (p. 1165) as without a clear understanding of how teachers implement innovations or new practices it is unlikely that staff development can support innovation at classroom level. For innovation to be successful they point to the ability of teachers to be able to respond to the unique and varied context in which they teach. Teachers' beliefs, practices and experiential contexts intersect and interact and these are personal experiences which they bring to teaching (Opfer, Pedder & Lavicza, 2011);

> Teaching has to do in part at least with the formation of beliefs, and that means that it has to do not simply with what we shall believe, but with how we shall believe it. Teaching is an activity which has to do, among other things, with the modification and formation of belief systems. (Green, 1971, p. 48)

As the professional development takes place in context any changes required in the contextual infrastructure or school organisational change can occur simultaneously. These changes can help facilitate programme success and further motivate teachers. The instructional strategy of a professional development programme needs to include time and space for reflection as 'people learn best through doing, reflection, inquiry, evidence, more doing and so on' (Fullan, 2006, p. 10). It is vital that teachers experience regular positive feedback on their teaching, when implementing changes in practice, this will reinforce their teaching and encourage sustained change and further change (Guskey, 2002b). Although not applicable to this study, tri-level engagement which according to Fullan (2006) refers to connecting school, district and state as part of the change strategy of the professional development programme. Finally as the process of professional development facilitation can be a bumpy one, persistence and flexibility are vital to ensure the programme is seen through to the end. The premises of motivation, results, learning in context, context change, reflection and persistence and flexibility were premises which informed the professional development programme design. As the purpose of the professional development programme was to elicit change in teachers' knowledge these premises (instructional strategies) aligned with effective features of professional development and facilitated through a workable model should impact on teachers' teaching and bring about change in practice.

Guskey (2002b) identified the importance of introducing content that can fit in with teachers' existing practices based on teachers' needs, while at the same time allowing for adaptation and change to occur. Duffy (1993) found that although teachers initially asked for prescriptive lessons in his study, over time the teachers showed progress from modelling these prescribed practices to revising and inventing new strategies. Prescribed practices provide a starting point for the learning of new knowledge and the development of new ideas for many teachers trying to meet the needs of their pupils. Sparks (1986) found that teachers' attitude toward innovation and change was a person, the person who affected implementation – pointing to the importance of the role of the facilitator of the professional development programme in this study.

Models of Change. In physical education the change process may occur on one of three levels according to Sparkes (1990) and significant change at all three levels are necessary to achieve 'real change'. The three levels of change are surface change (new resources or curricula), changes in teaching approach (new activities or strategies) and change in beliefs. The most difficult change to bring about according to Sparkes is change in beliefs and in the lives of primary school teachers they are rarely if ever given time to reflect or discuss their beliefs and understanding of teaching and learning, nor are teachers shown how to reflect (Patton & Griffin, 2008). Ward and O' Sullivan (1998) point to a lack of reading of research in the field of physical education by teachers as a possible factor in the difficulty to bring about change in beliefs and practice.

According to Guskey's (2002b) model of change (Figure 2.2) professional development works through the process of i) changing teachers' classroom practices, ii) changing the learning outcomes of students and iii) changing the teachers attitudes and beliefs. This linear model suggests that change in teachers' attitudes and beliefs occur primarily after they gain evidence of improvements in student learning, as a result of improvements in teachers' classroom practices. In other words, teachers believe that the professional development has worked because they have seen it work and this has a positive effect on their attitudes and beliefs, 'it is not the professional development per se but the experience of successful implementation that changes teachers' attitudes and beliefs' (Guskey, 2002, p. 383). This concurs with the findings of Richardson (2003);

> By and large, changes in belief in one academic class that is not accompanied by significant and structured involvement in a field experience either do not happen, or if they do, may be somewhat suspect because of measurement problems with the change measure. (p. 11)

Guskey believed that for any change to endure, teachers needed to experience student learning. He also points out that this learning can take many forms and may not necessarily be cognitive achievement only (Guskey, 2002b), which is important in the case of primary physical education where learning outcomes include areas such as social and physical, as well as cognitive learning. This model does not allow for any change in beliefs and/or attitudes as a result of the professional development which would cause teachers to change their classroom in the first instance.

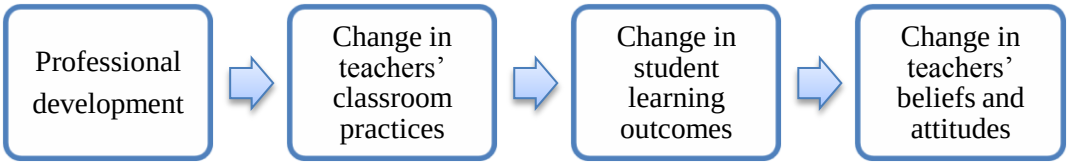

Figure 2.2 Guskey's model of teacher change (Guskey, 2002b)

Huberman (1995) states that the change process for teachers is a cyclical one (Figure 2.3), changes in beliefs lead to changes in practice that brings changes on student learning that brings further changes in practice that result in additional changes in beliefs and so on. Already we are seeing that disagreement exists about the order in which the change sequence occurs. Change in a cyclical process indicates that change can occur at any point in the change process and assumes that change is not just influenced by professional development but also by 'structural, cultural and political aspects of a teacher's experiential context' (Opfer et al., 2011, p. 446).

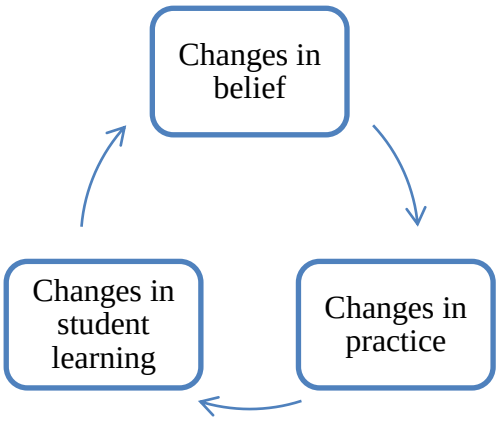

Figure 2.3 Huberman's model of teacher change (Huberman, 1995)

Desimone (2009) proposed a theory of change that articulated the process of change as interactive, nonrecursive relationships between the core features of professional development, teacher knowledge and beliefs, classroom practice and student outcomes. She goes further in outlining professional development to include key features and believes that change in attitude occurs prior to a change in teaching practices to foster increased student learning (Fig 2.4). This model can allow testing of both the theory of change (can professional development change teachers' beliefs and attitudes?) and the theory of instruction (can changed practice influence student learning?) according to Desimone (2009). She points out that although her model is a basic one it is one which can become a foundation on which to build a knowledge base about what makes professional development effective.

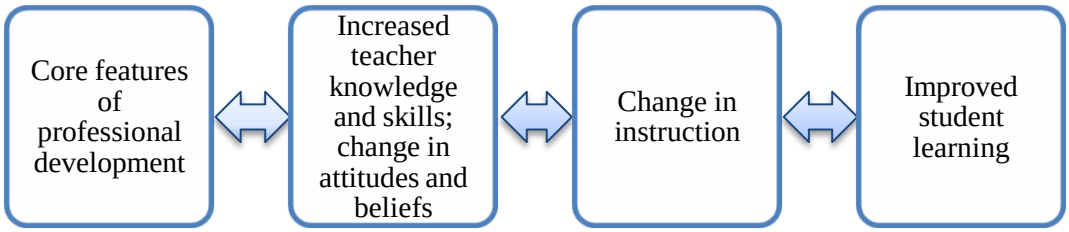

Figure 2.4 Desimone's model to test a theory of teacher change (Desimone, 2009)

In reviewing the literature on teacher change, it became evident that teacher change cannot take place unless professional development takes place, carried out in a supportive environment. Therefore a key feature of the professional development needs

to be collective participation (Bryk and Schneider, 2002; Cordingley et al, 2003; Darling-Hammond & McLoughlin 2011; Guskey, 2003; Hipp et al 2008; Maldonado, 2002). Teachers need to be motivated to adopt the change process, in this case the facilitator was to provide the motivation through the professional development programme initially and for it to be effective the teachers must begin to diffuse the programme. The professional development programme content and facilitation (instructional strategies) should also be related as closely as possible to the teachers practice and context and show change in pupil learning, for change to be adopted. The importance of introducing content knowledge, as outlined in the previous section, that is congruent with teachers existing practice, ensuring active learning and coherence (Armour & Duncombe, 2004; Armour & Yelling, 2004b; O' Sullivan & Deglau, 2006; Pope & O' Sullivan, 1998; Timperley, 2008), while at the same allowing teachers to adapt and change will be considered in the design of the professional development programme. Therefore while each of the models above refer to change in practice, change in beliefs and change in student learning there is little consensus as to the order in which these changes occur or if order does in fact matter once the professional development programme has been effective in achieving change. The extent to which these changes happen are also not clear with Wayne and colleagues (2008) pointing to duration of the professional development programme as being a factor. In this study the professional development programme in its design and instructional strategies may bring about change and how this change occurs will be reviewed on completion of the professional development.

Evaluation of Professional Development

School districts in the US are encouraged to adopt quality professional development programmes and practices that are supported by scientifically based research (Birman, Le Floch, Klekotka, Ludwig, Taylor, Walters et al., 2007; Blank, de las Alas and Smith, 2008). There is a need to ensure that professional development is evidence based and consequently a need for research to explore and evaluate its impact on the teacher and the student for legislative and practical reasons. A key factor in ensuring effective professional development is matching the professional development programme to the particular needs of the teacher and the activities are important in ensuring there is a positive effect at class level. An objective of this study was to evaluate the process and impact of a professional development programme, therefore the best methods of evaluation needed to be established. Many professional

development courses finish with the evaluation completion task or feedback sheet for the facilitator. This feedback centres mainly around the delivery of content, were objectives met and would it impact on teaching, rarely is the focus on teaching and learning – or providing evidence of teaching and learning (Muijs, Day, Harris & Lindsay, 2004). Fishman and colleagues (2003b) point out that 'to create excellent programs of professional development it is necessary to build an empirical knowledge base that links different forms of professional development to both teacher and student learning outcomes' (p. 643).

Over the years a number of frameworks have been devised to evaluate the impact of training and development. One of the first and best known frameworks is that of Kirkpatrick published in 1959 (Earley and Bubb, 2004). Although focussing on business and commerce training its four steps have been adapted by many over the years. The steps being, the relationship between the participant, and the context at four levels: reaction, learning, behaviour and results. Caffarella (2002) defined programme evaluation as, 'a process used to determine whether the design and delivery of a programme were effective and whether the proposed outcomes were met' (p. 225). This definition of programme evaluation matches the objectives of this study, but further research was reviewed to ensure all aspects of possible evaluation methods were considered. Effective evaluation of a programme of professional development serves two main purposes: summative evaluation (evaluation of the outcomes - are outcomes improved/is further professional development necessary?) and formative (evaluation of the process - can the programme be improved?). Craft (2000) when writing about the evaluation of in-service education and training or other forms of professional development identified the following areas for evaluation:

- Teacher satisfaction
- Impact on teachers' knowledge, attitudes and skills
- Impact on teachers' practice or professional growth
- Impact on teachers' careers or roles
- Impact on school or team culture
- Impact on pupils' learning
- Impact on school or team management and organisation' (p. 86)

Comprehensive evaluation of professional development programmes provides useful and reliable information on the effectiveness of these programmes at achieving their stated outcomes. This evidence is vital to distinguish between good and poor forms of professional development. Evaluation from planning stages right through to completion of a programme of professional development should be an integral part of the process, just as we expect professional development to become an integral part of teaching rather than an add-on.

Guskey (2000) adapted Kirkpatrick's model for use in education and extended the model to five levels of evaluation as follows.

Level 1 is the most common form of evaluation and centres on the participants' reactions to the professional development experience. Questions asked may focus on enjoyment, resource provision, understanding of content, knowledge of facilitator and/or usefulness of learning. These questions address whether many of the key features outlined earlier were in fact effective such as content focus, coherence and active learning experiences of the PDP and whether these features underpinned teacher change.

Level 2 focuses on measuring the knowledge, skills and attitudes of the participants. This gives the evaluator information on participant learning and allows him to make judgements on improving content, format or organisation of the professional development.

Level 3 evaluates organisational support and change. The participants may have learned and gained from the professional development they have engaged in, but on returning to their school and trying to apply their newly found knowledge they are faced with organisational difficulties and maybe lack of support from their Principal. Evaluation at this level focuses on whether the change was supported with organisational change, for example operating procedures. Some programmes of professional development may aim to change school structures e.g. frequency or duration of physical education lessons. Others aim to change cultures which are a more difficult change to implement as they require teachers to develop new beliefs and attitudes. Teachers' existing beliefs and attitudes may have developed over a number of years and are related to the context of the school, which makes them more ingrained and difficult to change. Teachers feel support, comfort and valued when changing practices

especially if they are given collegial and/or Principal support and encouragement. The reverse is also true and lack of structural change, collegial support or good leadership may inhibit professional development.

Level 4 assesses participants' use of their new knowledge in their professional practice. This is an essential part of any professional development evaluation as there will be no impact on student learning without first improving teachers learning and teaching practices.

Finally, at level 5, Guskey's evaluation model focuses on the pupils and how a professional development programme may have impacted on them. How did the children change or learn anything as a result of the professional development programme. This information offers a new perspective on the professional development and promotes high expectations of the professional development programme. In evaluating the programme and keeping children's learning outcomes in mind it allows professional developers to ensure effective practices. Allied to the theoretical framework is the reality that this research is being carried out for evaluative purposes.

Frost and Durant (2003) developed Guskey's model further to include how teachers' learning is also able to make a contribution beyond the school community. As this study is a case study bound by the school, teachers and school community this model was not considered. Stufflebeam (1971) proposed the CIPP evaluation model which focusses on the decision making processes of policy makers and administrators when evaluating professional development. The model is based on four kinds of evaluation information: context, input, process and product, hence the acronym CIPP. Although recognising the importance of decision making in the process of implementing a programme of professional development this study hoped to go beyond this, hence this model was also deemed inappropriate.

Surveys on completion of professional development activities were originally how programmes' effectiveness was measured. More recently research has progressed on how we perceive professional development and therefore how we measure its effectiveness. According to Desimone (2009) measuring the quality of professional development involves measuring 'the quality of teachers' learning experiences, the nature of teacher change, and the extent to which such change affects student learning' (p. 188). Measuring teacher or student learning in physical education involved issues

such as assessment and how to assess, and as yet there are no standardised testing procedures for physical education. Therefore approaches such as mixed methods combining the qualitative methods of questionnaires and qualitative methods of interviews and observations seem to be the best choice when researching in this area (Desimone, 2008; Tashakkori and Teddlie, 1998). At this stage of the research no method was dismissed as being more appropriate than another in gathering information relating to the effectiveness of professional development in this study. The flexibility of the research design to incorporate the most appropriate method to gather specific information required in this study and how any researcher bias was avoided are discussed in detail in chapter 3.

Given the large public investment in professional development over the years, research has much to offer in addressing the practical questions which designing and implementing a professional development programme might face. The effectiveness of the programme of professional development in the study needs to be described and understood within the context in which it takes place;

- utilising the key features of professional development (needs based, active learning, collective participation, content focussed, contextualised, on-going and partnership)
- facilitated through a personalised programme (programme model and instructional strategies)
- and monitored and evaluated throughout primarily using qualitative methods of data collection

In reviewing the models of evaluation, Guskey's model of evaluation was identified as the model most closely aligned to the research framework. It was also highlighted by Day and Sachs (2004) as a meaningful model of evaluation of professional development for education. The model accounts for all the stakeholders and internal and external factors which may influence the success of the professional development programme at the centre of this research. How this model fits into the overall study conceptual framework is discussed further in chapter three.

Summary. This section reviewed professional development and began with an explanation of the term from the simple (Earley and Bubb, 2004) to the complex (Day,

1997). The section continued by outlining many of the key features of effective professional development which included content focus, coherence, active learning, duration, collective participation, communities of practice, partnership, models and evaluation. Models of professional development such as Cafferella's Interactive Model of Programme Planning, the INSET model and cognitive apprenticeship were presented and a rationale given for their selection in guiding the design of the PDP, acknowledging how they aligned with the key features of professional development. Professional development if effective should lead to teacher change, and from the review it can be seen that change is complex. The professional development programme must contain the key features outlined above to be effective in achieving change. Change occurs in teachers' beliefs and attitudes, teachers' classroom practice and pupil learning but we can see from the research that there is little consensus on the order in which this happens. The section concluded with a review of the literature on evaluation of professional development and a rationale for the selection of Guskey's model of evaluation (2000) to inform the research framework for this study is given.

Section Three

Outdoor and Adventure Activities

The content of the professional development programme in this study focussed on a whole school approach to teaching Outdoor and Adventure Activities to all classes within the case study school. The inclusion of Outdoor and Adventure Activities (O&AA) as one of the six strands in the Physical Education Curriculum, is an indication of the value placed by the National Council for Curriculum and Assessment (NCCA) on the benefits of stimulating experiences gained outside of the classroom in challenging learning situations. O&AA calls on children to overcome difficulties, work with and trust others, and develop a respect for the environment they find themselves in. In the Physical Education Curriculum (Government of Ireland, 1999b), O&AA is concerned with walking, cycling, camping and water-based activities, orienteering and outdoor challenges. Walking, cycling and camping are activities which may be offered by schools along with providing opportunities for canoeing and sailing, to the older classes. Orienteering combines the geographical skills of map work, the physical activity of walking or running and the adventure of exploring unfamiliar locations. Challenges include trust or co-operative activities, group problem-solving exercises and physical

challenges. In the UK, similar to Ireland, outdoor and adventurous activities (OAA) refers to; 'those activities which are taught as part of the normal school curriculum; using the existing facilities and campus of the primary school; by the generalist class teacher, without the need for additional qualifications, and to the whole class at the same time' (Martin, 2000, p. 187). Pickup and Price (2007) believe that OAA holds the most potential for learning in the affective, social and cognitive domains. According to the Curriculum (Government of Ireland, 1999c) the O&AA strand offers 'alternative avenues for pupil achievement and encouragement to adopt a healthy life-style based on an enjoyment and appreciation of the outdoors' (p. 5). The final strand unit of O&AA is, understanding and appreciating Outdoor and Adventure Activities, which Priest and Gass (1997) in their book, identify as environmental education, which focuses on the child's awareness and knowledge of the environment and their relationship with the environment. Although 'understanding and appreciation' is part of O&AA within physical education there are overlaps and links can be made with the Social, Environmental and Scientific Education Curriculum (Government of Ireland, 1999d). According to Priest and Gass (1997) school based outdoor and adventure education focuses on learning *in* and *through* the outdoors emphasising personal and social development. Pickup and Price (2007) state that Outdoor and Adventurous Activities (OAA as termed in the UK) are perhaps the most misunderstood area of the National Curriculum in Physical Education. Just as adults' perceptions of games as being rugby, basketball or hockey, likewise many teachers equate OAA with rock climbing, canoeing and potholing. These specialist activities are well beyond the scope of the generalist classroom teacher. While these activities can be introduced by appropriately qualified leaders and staff during residential experiences or day trips to outdoor activity/education centres, curricular OAA 'can provide meaningful opportunities for children to experience very distinct learning tasks' (Pickup & Price, 2007, p. 151). Stidder and Haasner (2011) acknowledge the reason why outdoor and adventurous activities in UK primary schools is neglected is the relative lack of expertise amongst primary school teachers. This may also be the case why only 16% of children (Woods et al., 2010), in fifth and sixth class, have experienced O&AA in Irish primary schools. O&AA was introduced as a strand in 1999 and teachers received two hours National In-service in O&AA in 2005, which may account for their lack of competence and confidence in teaching O&AA, along with the fact that teachers themselves would not have experienced the strand taught to them when they were in school.

The following outcomes are all possible for children, through a taught programme of O&AA following the Physical Education Curriculum (Government of Ireland, 1999b) and Teacher Guidelines (Government of Ireland, 1999c), supplemented by the resource materials for teaching physical education (Primary Schools' Sports Initiative, 2006):

- Use simple plans and diagrams of their environment, use simple maps, use maps and recognise signs and symbols, use maps of known and unknown environments.
- Respond to a set challenge.
- Work co-operatively with others.
- Discuss how to follow trails and solve problems.
- Comment how they went about tasks.
- Use ideas they have learned from one task to help them solve another.
- Recognise other possible approaches.
- Develop trust.
- Give opportunities to develop leadership skills.
- Learn through fun activities.

According to Martin (2000), 'the primary focus of OAA is to teach problem solving skills to focus on process, to learn to co-operate and to learn from group mistakes while participating' (p. 188). There is limited exposure to danger in the O&AA primary curriculum content, however the challenging nature of the activities must be acknowledged. Therefore, the teachers must ensure they have planned and organised all activities thoroughly paying particular attention to any possible risks that may present themselves. Teachers also need to appreciate that in O&AA the learning processes are 'essentially practical, enquiry based, and pupil orientated and that there is always potential for personal and social development' (Hopper, Grey & Maude, 2000, p. 78).

Outdoor Education/Outdoor Pursuits

Outdoor education deals with the outdoors which is linked to the notion of an outdoor environment such as a national park or an outdoor and adventure centre, the idea for most being outdoor education takes place in the 'wild' (Stiehl & Parker, 2010). This is not to say however that the O&AA strand does not include aspects of 'off-site'

activities which may be undertaken by teachers and children in parks and adventure centres. According to Zink and Burrows (2008) outdoor education, 'does occur in the outdoors but…it can occur in classrooms and on the sports field at school. Nevertheless, students and teachers alike can readily claim the other activities such as sport that occur on the same outdoor fields are not outdoor education' (p. 252). Outdoor pursuits/education or wilderness sports are intended to provide participants with experience and skills to enjoy and care for our natural environment. Outdoor activities include rock climbing/ bouldering, hill walking, caving, snorkelling, surfing, kayaking, backpacking, boating, camping, canoeing, fly casting, orienteering, wilderness trek, and more. Outdoor pursuits will normally require additional qualifications for teachers, and usually may only include a small number of pupils in extra-curricular time in an off-site setting (Martin, 2000). Stiehl and Parker (2010) describe the difference between outdoor education and adventure education as, outdoor education places 'greater emphasis on skill development. Whereas adventure education emphasises symbolic activities such as rope challenge ropes courses and new games, outdoor education focuses more on explicit knowledge and skills that are pertinent to a specific outdoor activity' (p. 249). They point to the similarity between both as their focus on personal and group development.

Adventure Education

How is adventure education otherwise different from outdoor education? Adventure and outdoor education are similar, yet different. Both involve elements that link closely to development of self-reliance and self-confidence, personal responsibility and respect for others as well as the environment (Dyson & Brown, 2010; Stiehl & Parker, 2010) as does outdoor and adventure activities. Many of the concepts or themes developed in adventure education (eg trust, communication, problem solving) are prerequisites for participation in activities in the outdoor environment. The characteristics identified below are common to both adventure and outdoor education.

Experiential – based on the notion of 'doing' that instils a sense of ownership

Risk – understanding that risk means something different to every person

Challenge – helping young people to accept challenge as a means to grow

Enjoyment – pleasure is 'key' to continued participation in any activity

Problem solving – resolving problems individually or in a group is critical to group cohesion and cooperation.

Adventure Education is a philosophy rather than a set of activities. Adventure is about trust, choice, cooperation, self-confidence, respect, discovery, problem solving, enjoyment, challenge and taking risks. According to Siedentop and Tannehill (2000), 'experiential learning provides learners with the opportunity to challenge themselves physically and mentally, work cooperatively as a group to solve problems and overcome risk, and again respect for, confidence in, and trust in themselves and their peers' (p. 151). Miles and Priest (1990) state that,

> Adventure education involves the purposeful planning and implementation of educational processes that involve risk in some way…. The defining characteristic of adventure education is that conscious and overt goal of the adventure is to expand the self, to learn and grow and progress toward the realization of human potential. (p. 1)

Similar to the aims of O&AA, in adventure education children are encouraged to think independently while working with their classmates, in an atmosphere of cooperation, trust, self-expression and problem solving (Dyson & Brown, 2010). Brown (2006) points to the importance of noting that adventure programmes taught in schools as part of a physical education programme may be conducted in school gyms or on sports fields – the main point being that, 'the participant is actively engaged in the learning endeavour, preferably in a holistic manner which requires physical, mental and emotional commitment' (p. 685). Adventure education has been promoted within physical education for its student centred pedagogy which is seen as an innovative and holistic approach to movement education and a means of developing social interaction and personal qualities

Outdoor and Adventure Education Research

Research suggests that both teachers and children report favourably on the use of adventure and/or outdoor education as part of a physical education programme (Brown, 2006; Dyson, 1995; Prouty, Panicucci & Collinson, 2007; Stiehl & Parker, 2010) which was an intended outcome of the professional development programme as requested by both the children and teachers in chapter four. Dyson (1995) investigated students perceptions of their physical education classes (they were undertaking a programme of outdoor and adventure activities using Project Adventure), and reported

that students claimed to have increased their enjoyment and learning and more importantly that they liked to challenge themselves in physical education. The O&AA subject content of the professional development programme (PDP) was planned to challenge the children appropriately throughout the unit of work and activities and challenges which were perceived and experienced by the facilitator as fun, were included.

Many outdoor and adventure programmes take place off site at various types of centres accessible to the school, and these experiences are facilitated by centre employed leaders. However, in regard to school based programmes, Beedie (2000) reports that, the educational potential of internally led activities, (facilitated by the students' usual teacher, rather than being contracted out to an external agency or outdoor education centre) is likely to be greater due to issues of continuity, the likelihood of transfer to other school – based activities and endeavours. He goes on to claim that 'programmes can be delivered that require very little technical equipment and do not need wilderness locations to implement' (p. 20). The study school availed of adventure centre facilities on occasion in the form of school tours for sixth class (Year 8) children. These trips have been arranged for fun in the past and learning outcomes have not been a focus. Teachers, following the professional development programme, should in the future be able to select appropriate learning activities when trips to these facilities are planned, without negating fun or enjoyment.

Resourcing for outdoor and adventure activities is more challenging than for other strands for the teacher as the initial preparation of materials and equipment can be lengthy (Hopper et al., 2000). Burrus-Bammel and Bammel (1990) reported that teachers indicated that the greatest barriers to outdoor education instruction are lack of teaching resources, and misgivings about their level of competence. However, once resources are prepared they can be re-used, used by colleagues and used in other curricular areas. The children should be taught to set up equipment which encourages them to work together and reduce organisational time allowing more activity time in a lesson. Hopper and colleagues (2000) also point out that some of this equipment is 'unorthodox' and so all children should be taught how to use it within the outdoor and adventure context. Furthermore, they stress the importance of boundaries for trails and courses in order to ensure all children are safe. All of these aspects highlighted by Hopper and colleagues (2000) were considered in the programme design and contents, with many aspects outlined in the curriculum (Government of Ireland, 1999b;

Government of Ireland, 1999c) and resource materials (Primary Schools' Sports Initiative, 2006) as outlined in detail in chapter five, the development of the professional development programme.

Conclusion

Some issues have arisen and lessons learned from previous experiences of professional development both nationally and internationally, with primary school teachers in all areas and more specifically in the area of physical education. Understanding how researchers over time have come to see professional development; its requirements in design and delivery; its positive and effective features and how it can effect teacher change has informed the research questions in this study. Some key findings which have arisen from reviewing the literature on teacher change, relating to professional development and exploring the history of education reform and teacher change in Ireland are as follows:

- The consistent curricular reform occurring internationally and nationally over the past century, which requires teachers to constantly change
- The lack of provision by the government to adequately provide for and support curricular reform, which has led to teacher apathy, in trying to change
- The limitations of content knowledge based professional development, but also its importance as a starting point in many areas of the curriculum and also in acquiring pedagogical content knowledge
- Increased knowledge (both content and pedagogical knowledge) can bring about change in teaching practices
- The many features of effective professional development and the importance of establishing the most effective of these in relation to the teachers and the school
- The necessity of evaluating professional development programmes
- The need for a national professional development in physical education framework whereby all stakeholders in professional development are involved

For the purposes of this study the features of effective professional development, the characteristics of positive teacher change, along with the lessons learned from

previous professional development provision in Ireland will be paramount in informing the professional development programme at the centre of this study. Initially, the teachers in the study school will be required to complete a professional development needs analysis based on physical education following a review of their current teaching practices in physical education. Once this is established the programme can be designed, in agreement with the teachers, ensuring that they contribute to how they might see relevant opportunities for professional development occurring in their school and/or classrooms. As time for planning, discussion and reflection and feedback was a key factor in effective professional development, time to facilitate this will have to be negotiated with the teachers and the Principal within school time which according to the research is the time most requested by teachers.

Many contextual difficulties, in relation to schools and strand implementation, have been discussed in this chapter and in order to be aware of these and account for them in any professional development programme, periods of observation in the school will have to be part of the research design. As research in Ireland, on teachers' practices in physical education, has indicated that most lessons taught are games based and to redirect this imbalance in schools it would be important that any professional development in a primary school consider programmes to support teachers in creative dance, gymnastics and outdoor and adventure activities, initially. The evaluation of the professional development programme, from design to outcome is critical, in order to show the impact of the programme and the principles which might bring about change. From this review it is evident that any evaluation should use a multitude of research methods. For example a combination of qualitative methods including interviews with the key stakeholders (Principal, teachers and children) and direct observations of teachers prior to, during and post the PDP appear warranted. Chapter three will detail the research design and the methods of data collection to be used in evaluating the professional development programme in this study.

Chapter Three: Methodology

This study seeks to describe, analyse and understand teachers' and children's experiences of a contextualised, whole school professional development programme in primary physical education. A research design had to be identified which would provide the structure to evaluate the effectiveness of the various aspects of the programme. Overviews of the theoretical perspectives that underpin this study were outlined in the introduction to this thesis and this chapter outlines the research design in light of the theoretical framework. This chapter is divided into five sections, each section outlining a particular aspect of the design of the study. The first section explains the research design through the conceptual framework for the study including the aims and objectives for each phase of the study, while section two discusses the various data collection methods utilised in the study. The third section describes the data analysis and the chapter continues with the ethical considerations and concludes by positioning the researcher within the study context.

The research methodology is a case study with mixed methods being utilised Phase 1 is quantitative methods driven followed by a second qualitative data collection. Phase 3 and 4 are qualitative methods driven with quantitative methods being used simultaneously. Overall the study has an inductive drive, with each study planned and conducted to answer particular research questions. The real strength in using mixed methods is to obtain a different level of data providing together a more comprehensive picture than any earlier method on its own (Morse, 2003).

Strategy of Inquiry - Research Design

A case study approach was chosen as it offers the potential of gaining access to a rich source of data and a deep understanding of the complexities of the school. 'It is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances' (Stake, 1995, p. xi). In this thesis the case is the school, bounded by the school environment, the principal, teachers and pupils, and the important circumstances are the professional development programme at the core of the study. This school became the focus of the study, when the school's principal recognised a need for professional development in the area of physical education and approached the physical education staff in a college of education to facilitate this. The author accepted this invitation and acknowledged that this could also be a research

opportunity. Defining and describing a case study is a difficult task. Lincoln and Guba (1985) acknowledge the difficulty in describing a case study when they write, 'while the literature is replete with references to case studies and with examples of case study reports, there seems to be little agreement about what a case study is' (p. 360). Gillham (2000) provides a detailed definition of case studies;

> A case study is one which investigates the above [a group such as a family, class, office, hospital ward, institution or large scale community] to answer specific research questions (that may be very loose to begin with) and seeks a range of different evidence, evidence which is there in the case setting, and which has to be abstracted and collated to get the best possible answers to the research question. No one kind or source of evidence is likely to be sufficient (or sufficiently valid) on its own right. This use of multiple sources of evidence, each with its strengths and weaknesses, is a key characteristic of case study research.' (p. 1-2)

Many authors have classified case studies in to various categories. Stake (2000) identifies two types of case study, intrinsic – which focuses on the individual case and instrumental – which studies a number of cases to understand a wider puzzlement. Stenhouse (1985) identified four categories: a. ethnographic case study – a single case studied in its own right through participant observation and interview; b. evaluative case study – which aims to provide an evaluation of policies and programmes for example and may be single or a collection of cases; c. educational case study - which aims to ' enrich the thinking and discourses of educators whether by the development of educational theory or by the refinement of prudence through systematic and reflective documentation of evidence' (p. 49); d. action research case study – which is concerned with the development of a case through feedback of information which can inform revision or refinement of the action. Yin's (1993) categorisation is similar but contains only three categories: a. an exploratory case study aimed at defining the questions and hypotheses of a subsequent study; b. a descriptive case study which describes the phenomenon in its own context and c. an explanatory case study which data bearing on a cause-effect relationship – explaining which causes produced which effects. These categories help locate the key features of case study and provide a framework for this research. The use of the term 'case study' in this study has features of Stenhouse's (1985) educational and evaluative studies and Yin's (1993) descriptive case study. Thus various methods were employed, description and explanation sought, data analysed and themes developed and the case studied to shed light on the research questions.

Thus for the purposes of this study the case is taken to mean a particular school, an urban, mixed gender, primary school [teachers: N=28 (year 1), N=27 (year 2) and pupils: N=780 (year 1), N=800 (year 2)] the school community of Principal, teachers and pupils and the variables that construct physical education and professional development in physical education in the school and its wider social context. A mixture of qualitative and quantitative research methods including interviews, focus group discussions, observations, teacher lesson evaluations, questionnaires, self-efficacy questionnaires and physical measurements were used during the study.

The study was divided into four consecutive phases, each of which informed the next phase of the research. The study concluded with an evaluation of the overall professional development programme on completion. Although much of the research design was established prior to its inception, aspects were 'emergent' (Guba and Lincoln, 1985). The emergent research design was primarily associated with the programme itself, and the methods of data collection that were used. The research design provided a firm structure within which the methodology remained flexible and was changed relatively easily.

Conceptual framework. Allied to the theoretical framework is the reality that the research is being conducted for evaluative purposes. The research framework for this study is based on the professional development cycle outlined by Early and Bubb (2004) (Figure 3.1) and the professional development levels of evaluation informed by Guskey (2000) (Figure 3.2).

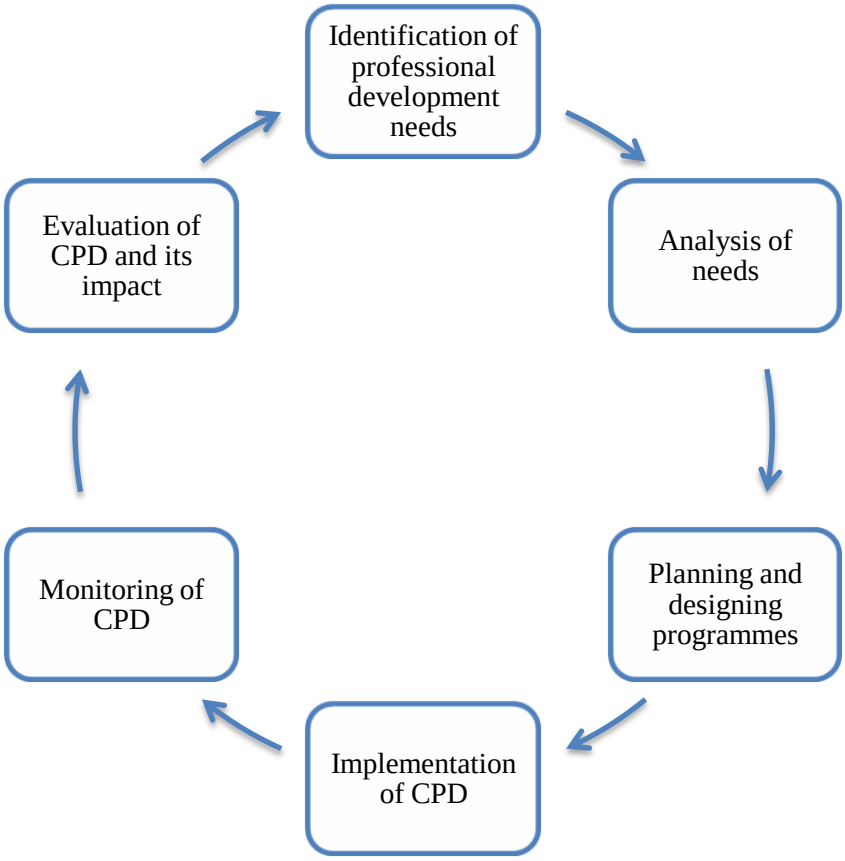

Figure 3.1 The professional development cycle (Earley & Bubb, 2004)

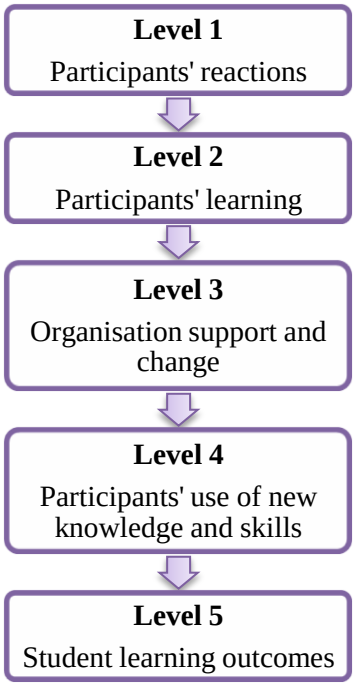

Figure 3.2 Levels of evaluation of professional development (Guskey, 2000, p. 82)

The research framework is outlined in Figure 3.3. Earley and Bubb's professional development cycle informed the facilitation phases of the professional development programme. The evaluation of the professional development programme was informed by Guskey's critical levels of evaluation of professional development. The purpose of phase 1 was to understand the case prior to any professional development facilitation. The data gathered established the practices and perspectives of the teachers and children in relation to physical education. It also identified teachers' professional development needs within the study school. The data gathered informed phase 2, the design and implementation of the professional development programme, and the necessary supporting resources were planned and produced. Phase 3 investigated the impact of the implementation of the professional development programme, to inform further support which was to be offered to the teachers in order to ensure quality delivery of Outdoor and Adventure Activities. Phase 4 occurred 6 months after the initial programme and during this phase continued professional development was available to teachers as they taught the O&AA strand themselves. The aims, objectives and methodology for each of the phases will now be outlined.

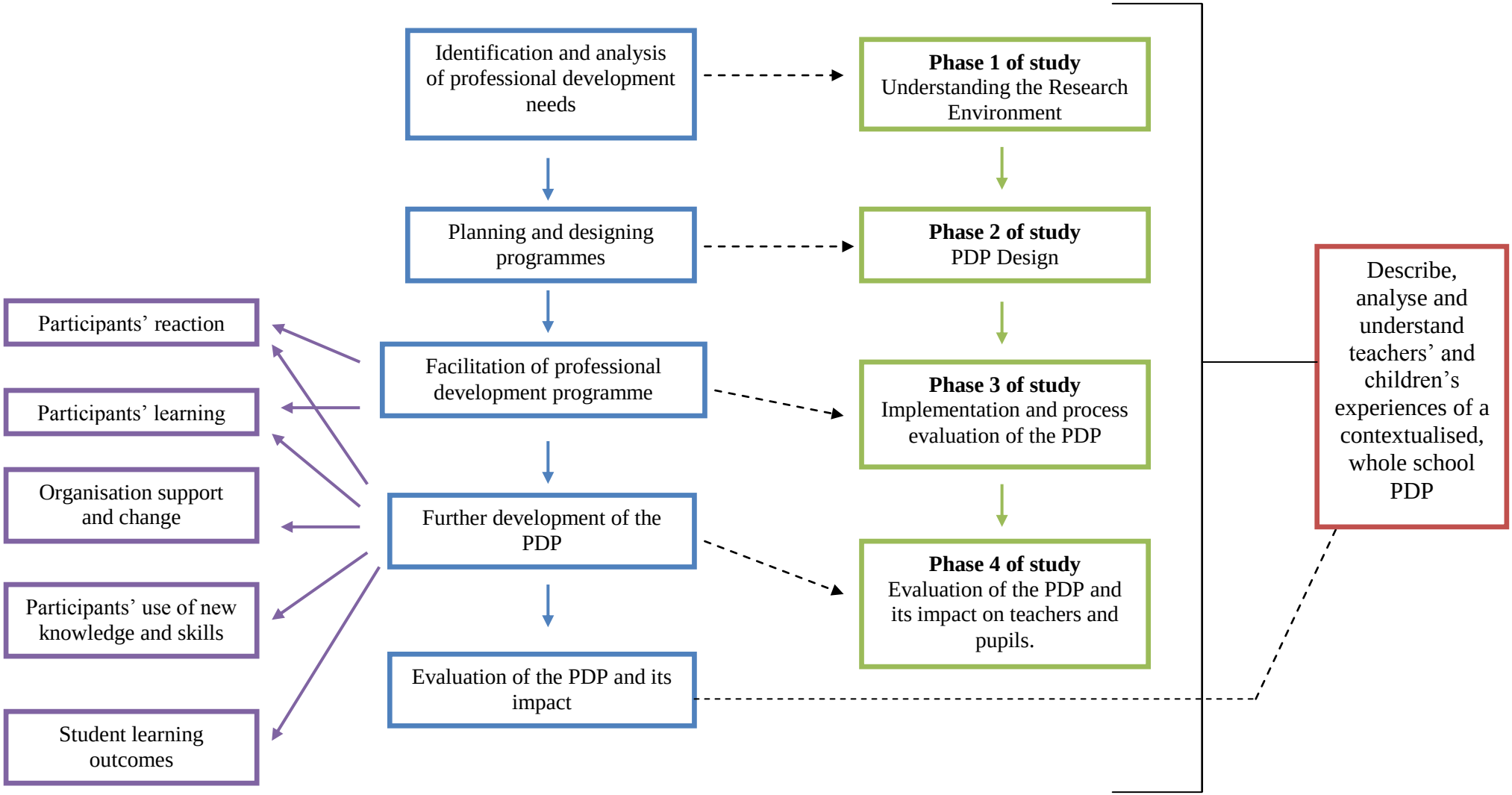

Figure 3.3 Framework for the research study adapted from Earley and Bubb (Figure 3.1) and Guskey (Figure 3.2).

Overview of research phases.

Phase 1 - Understanding the Case.

Aim. To learn about and understand the case study school.

Secondary research questions.

- What is the participant teachers' background?
- What is current teacher practice in relation to physical education?
- What are the teachers' professional development needs?
- What are the children's practices and perspectives on physical education and physical activity in the school?
- What are the children's health related physical measures like in comparison to normative standards?

Methodology. All teachers (N=28), and children (N=605) from senior infants to sixth class, in the study school provided participant and contextual information through the completion of self-report, researcher developed, questionnaires. This information was supplemented by focus group interviews with teachers (8 interviews) to perform a professional development needs analysis and explore further the outcomes of the survey findings, and with children (6 interviews) to establish children's understanding of physical education and to elaborate on the survey findings. A physical best day was undertaken by all children from first to sixth class to establish health and fitness measurements. Field notes were also kept throughout each phase to further inform the study.

Phase 2 – Professional development programme design.

Aim. To plan and design the professional development programme (The professional development programme is outlined in detail in Chapter 5).

Objectives.

- To plan and design schemes of work
- To plan and design individual lessons
- To source, create and/or purchase resources required

- To familiarise myself as professional development facilitator with teacher needs and knowledge base
- To propose a schedule of professional development provision for the initial and follow-up O&AA programmes

Methodology. The schemes, lesson plans and resources were compiled using the Resource Materials for Teaching Physical Education in Primary Schools (Primary Schools' Sports Initiative, 2006) and other supplementary resources as well as knowledge gained as indicated in phase 1. Field notes of the process involved were made. Models of professional development were reviewed to establish best practice. All support was teacher led.

Phase 3 - Process evaluation of stage 1 of the professional development programme.

Aim. To investigate the process of the professional development programme provision

Secondary research questions.

- What were the practices and perspectives of the teachers during the implementation phase of the programme?
- What types of support were requested and around which areas most support required?
- Was support required to be contextualised and sustained?
- Were there indications being exhibited that either supported the programme or otherwise?
- What were the children's opinions regarding the programme?
- What was the impact of the programme on the physical activity of the children, and the various lesson contexts, during physical education lessons?

Methodology. During the professional development programme facilitation field notes and observations were kept outlining what type of support was provided. Focus group interviews were carried out, on completion of this initial stage of the professional development programme, with both teachers and children to ascertain if programme objectives were achieved. Child activity levels, lesson context (management,

knowledge, skills, fitness and games) and teacher instruction were quantified using a validated (McKenzie, 2005), direct observation instrument, SOFIT (System for Observing Fitness Instruction Time).

Phase 4 - Process evaluation of stage 2 of the professional development programme.

Aim. To establish if teachers could teach the Outdoor and Adventure Activities strand with minimal or no support, six months after stage 1 of the professional development programme.

Secondary research questions.

- Did teachers' knowledge systems expand?
- Did contextualised professional development work?
- Did the teacher, school and facilitator partnership work and to what extent?
- Were there barriers to effective professional development?
- Did teachers become more effective in their teaching of O&AA?
- What were the participants' (teachers' and children's) reactions to the programme?
- What were the Principal's thoughts and perspectives on the programme?

Methodology. Focus group interviews with teachers and children were used to gather data on completion of this phase of the study. A semi-structured individual interview was also carried out with the Principal to explore his thoughts and perspectives on the programme. Further data were collected whereby lessons were observed by the researcher using an observation schedule (N=43). And where lessons were unable to be observed teachers completed a lesson evaluation form (N=14). Teachers also completed a self-efficacy questionnaire pre and post stage 2 of the professional development programme. Field notes were made throughout this phase of the research.

Evaluation of the professional development programme.

Aim. Evaluate the impact of a contextualised, sustained programme of professional development.

Secondary research questions.

- What were the participants' (teacher and children) reactions to professional development?
- Did participants' learn as a result of the PDP?
- Was organization support and change evident?
- What was the extent of participants' use of new knowledge and skills?
- What were the teacher and children learning outcomes?

Methodology. All data gathered through Phases 1 to 4, including questionnaires, interview, focus group interviews, observations, lesson evaluations, self-efficacy scales, unit of work, support schedules and field notes were reviewed to determine the impact, if any, of this programme of professional development.

Data Collection Methods

A mixed methods approach was chosen bringing together the 'best of both worlds' which was most appropriate to answering the research question. Greene, Caracelli and Graham (1989) categorized the following five general purposes of mixed methodological studies; triangulation; complimentarity; development; initiation and expansion. The purposes of mixed methods in this study are; complimentary, in the case of following questionnaires with focus group interviews to elaborate the findings from first method to the results of the latter; developmental, using the findings of both questionnaires and interviews to inform the programme and evaluation of same and; expansion, using a variety of different methods for different inquiry components such as one-to-one interviews, lesson observations and teacher evaluations.

The research strategy outlined above required the use of a number of data collection methods. Although recognising that each method has its strengths and weaknesses, the most appropriate method was chosen in practice for each of the study questions. Quantitative data enable standardised, objective comparisons to be made and bring objectivity to the research (Punch, 2006). On the other hand qualitative methods are more flexible and can be easily modified as the study progresses. Qualitative methods are also recommended for studying real-life situations (Denscombe, 2003; Punch, 2006; Tashakkori & Teddlie, 1998), such as that found in schools. In keeping with the research framework and guided by Guskey's (2000) five levels of professional development evaluation (participants' reactions, participants' learning, organisational

support and change, participants' use of new knowledge and student learning outcomes), data collection methods were structured accordingly at each phase of the study.

Quantitative methods of data collection.

Questionnaire. Questionnaires were used to collect general information from teachers to guide the focus group interviews and aid with the programme design. Gathering information by questionnaire had a number of advantages, as outlined by Denscombe (2003); Questionnaires provide standardised answers, they encourage pre-coded answers, they eliminate the effect of personal interaction with the researcher, they allow the respondent time to think before responding and they can be given to many people simultaneously. There can be disadvantages too, when using questionnaires, in that the pre-coded nature of the questions can prove to be restrictive for respondents. Low response rate and incomplete questionnaires can also be an issue. However as the questionnaires were to be followed by a focus group interview these disadvantages could be somewhat overcome. Two questionnaires were administered during phase one, one questionnaire for teachers and one for children.

The teacher questionnaire sought to elicit answers about teachers' practices and perspectives on teaching physical education. The 38 item questionnaire (Appendix D) consisted of closed, open and 8 Likert scale type questions in 4 sections, and was developed informed by previous research surveys and modified for this study (Cosgrave, 2006; Murphy, 2007; Tannehill, Romar & O' Sullivan, 1994). The sections were a. biographical details, b. your background in physical education, c. you and physical education, d. your experience of teaching physical education. The questionnaire was distributed to all teachers (N=28) and a two week time-frame was given for its completion and return.

The children's questionnaire (Appendix E) was administered to 605 children. Due to participant age range (5-14 years) and reading ability, a pictorial style self-report measure was used. This was adapted from a Belgian questionnaire (Pieron, Cloes, Delfosse & Ledent, 1996) for use in an Irish setting. Further modifications were made to clarify and introduce colour to the graphics, thus making it more 'child friendly'. The questionnaire was a combination of personal, behavioural and enjoyment determinants and used a combination of categorical, Likert and ordinal scoring

responses. Over a two-day period the questionnaire was researcher administered to all participants. Children from first class (year 3) to sixth class (year 8) completed the entire questionnaire with children from senior infants (year 2) omitting enjoyment measure due to its complex language. Four day test-retest reliability was established, percentage agreement scores (N=84, male, 52%; mean 7.85 years; ± 1.71; range 5-11years) which yielded an overall agreement of 82% for the instrument, and Cronbach's Alpha value for the enjoyment measure was 0.65.

Physical Best Day. Due to the exploratory purpose of this study, measures associated with a physical best day were considered relevant. Children from first class (year 3) to sixth class (year 8) completed tests, administered by a trained team of third level students, of aerobic fitness, muscular strength, flexibility and endurance. The tests included a 20m shuttle run, sit and reach test, curl up and trunk lift which have been approved and validated for use with children (Tomkinson, Leger, Olds & Cazorla, 2003). Anthropometric data including height, weight and BMI were measured using standard methods (Cole, Bellizzi, Flegal & Dietz, 2000). Results were stratified according to age and gender and compared to previously established normative values (Tritschler, 2000).

SOFIT. All eight years, junior infants to sixth class were observed three times during the professional development programme facilitation giving a total of 24 observed classes. Student activity levels, lesson context (management, knowledge, skills, fitness and games) and teacher instruction were quantified using a validated direct observation instrument, SOFIT (System for Observing Fitness Instruction Time) (McKenzie, 2005). Gold Standard reliability was achieved prior to and during data collection (94% and 96% respectively)

Self-efficacy questionnaire. Self-efficacy is part of the Social Cognitive Theory (SCT) (Bandura, 1986). SCT suggests that social, cognitive and behavioural factors play an important part in an individual's choice to adhere to, or to avoid situations. Within SCT, self-efficacy can be described as an individual's belief in his or her ability to perform a particular behaviour in a variety of circumstances (Bandura, 1997). Self-efficacy beliefs are highly correlated with whether teachers will enact curricular reform (McCaughtry, Martin, Hodges Kulinna & Cothran, 2006). Professional development programmes that successfully influence self-efficacy beliefs include a focus on new subject content, active learning for teachers, follow-up support and an emphasis on

teachers' needs (Ingvarson, Meiers & Beavis, 2005). Teacher self-efficacy emerged as an influencer of teaching performance at stage 1 of the PDP. Hence, a researcher-developed self-efficacy questionnaire was administered to teachers prior to and post their teaching of the O&AA strand at stage 2 (Appendix U). Its purpose was to assess any change in teachers' self-efficacy beliefs as a result of the PDP. Teachers were asked to rate their level of perceived confidence in their ability to teach a specific domain of the PDP on a scale from 1-10, where 1 rated as 'not at all confident' to '10' indicating 'extremely confident'. All eight domains of the PDP were included, on methodologies such as planning, equipment organisation and class management of an O&AA lesson and on content knowledge of warm up games, stretching, challenges, orienteering and walking activities specific to O&AA. The data was analysed descriptively using means and standard deviations. In order to test differences between time 1 and time 2, either a paired samples t-test, or a Wilcoxin signed ranks (for non-parametric data) was employed, using SPSS 17.0.

Qualitative methods of data collection.

Interview. The purpose of the interview is to gain an understanding of an individual's perspective on a given topic and/or life experiences (e.g. a teacher's perspective on his or her work, lessons, decision-making etc). An interview is a purposeful conversation between two (or more) people that is directed by one in order to get information from the other (Bogdan & Biklen, 1992; Kvale, 1996; Rubin & Rubin, 2005). Increasingly, researchers are realising that interviews are not neutral tools of data collection but rather active interactions between people leading to contextualised based results. The focus of interviews is moving to the how's of people's lives (the constructive work involved in producing order in everyday life) as well as the traditional what's (the activities of everyday life) (Gubrium & Holstein, 1997; Kvale, 1996; Silverman, 2005). The research question focused on the evaluation of a professional development programme and its impact and the purpose of the interviews was to supplement the initial questionnaire data and the observation data collected throughout the research, to provide answers to the research questions. The main advantage of interviews as a data collection method was that they provided a more 'in-depth insight into the topic' (Denscombe, 2003).

All interviews were semi-structured in nature as they provided the opportunity for participants, both teachers and children, to speak extensively on the subject at hand. Denscombe (2003) outlined the benefits of semi-structured interviews as follows;

> the interviewer …has a clear list of issues to be addressed and questions to be answered…the interviewer is prepared to be flexible in terms of the order in which the topics are considered, and, perhaps more significantly to let the interviewee develop ideas and speak more widely on the issues raised by the researcher. The answers are open-ended, and there is more emphasis on the interviewee elaborating points of interest. (p. 167)

The interview with the Principal (Appendix F) was the only one-to-one interview organised as the Principal's opinion and point of view was best sought using this method. Interviews took place on completion of both stages of the professional development programme. All subsequent interviews with teachers and children were organised as focus group interviews. The schedule focused on three areas, physical education practices in the school prior to the PDP, post the PDP and the Principal's views of the professional development programme. The following is a summary of the topics of the Principal interview schedule:

- Description of physical education in the school pre PDP
- Professional development context
- Changes in practice
- Changes in attitude of school community to physical education and O&AA, due to PDP
- Challenges to change
- Effects of PDP on school

Teachers' interviews. The semi structured focus group interview was chosen for its flexibility as a data gathering technique in the school setting and to accommodate the time available. Focus group interviewing capitalises on group dynamics and increases levels of focus and depth (Fontana & Frey, 1994). Group interviews should be used when: (a) group interaction stimulates richer responses, (b) new insights are possible, (c) groups pressure challenges exist, (d) discussion will illuminate conflicting opinions, (e) subject matter is not so sensitive to withhold information, and (f) a meaningful topic guide can be established (Morgan & Krueger, 1998). This technique is used to obtain insights to target audiences' perceptions, beliefs, and language. Focus group interviews were useful in this context as all 27 / 28 teachers (year 1 and 2

respectively), were to be interviewed. It is recommended that most focus groups should consist of 6-8 people but this is dependent on the objectives of the research (Merton, Fiske & Kendall, 1990). In the case of this study the groups were organized so that each group contained the teachers from a particular class level, three or four teachers, depending on the class. As the teachers work together in class groups to plan and implement the curriculum in the various subject areas, the researcher deemed that if any discussion or interviews were to take place then this was best done in those groupings. These group interviews would have the advantage in that they would produce rich data that were cumulative, they aided recall and the format was flexible. The interviews were facilitated by the Principal whereby he took class assemblies, allowing the class teachers free time in which to take part in the interviews. The interviews took place in the school staffroom and lasted on average an hour. As Junior and Senior Infant teachers were not involved in class assemblies, their interviews took place at times convenient to all teachers. Junior and senior infants' school day is an hour shorter than other classes and teachers generally chose this hour in which to carry out their interviews.

Glesne and Peshkin (1992) highlight that group interviews are useful in that some people need company to be encouraged to talk. In a non-threatening environment respondents can make disclosures safely and attitudes and perceptions are developed through interaction with other people. The researcher felt that the topic of this study lent itself to a discussion within a small group format and Denzin and Lincoln (1994) point out that this group would thus be termed a 'focus group' in that they would be discussing specific issues about teaching physical education. The focus-group questioning lent itself to the format of the semi-structured interview which involved a specific approach and technique of questioning whilst maintaining aspects of what Spradley (1979) calls *'friendly conversation'.*

Once the teachers agreed to be interviewed, part of the preparation was to outline the nature and scope of the focus group interview to them. Cohen and colleagues (2000), highlight that researchers will more readily gain permission and support if they discuss their proposed plans in an informed, open and frank manner. While it was advantageous that I was acquainted with the interviewees in terms of access, I was mindful of the danger of bias creeping into the interviews. Given that these interviewees had some prior knowledge of my views and my role as a lecturer in pre-service education in the area of physical education, I had to be aware that this could affect the

responses given. Borg (1981) highlights that response effects such as the eagerness of the interviewee to please the interviewer or the tendency of the interviewer to search for answers that confirm his/her preconceived notions should be acknowledged. There is an obligation for the researcher to help the interviewee feel protected and comfortable during and after the interview. In this study the researcher let the interviewee dictate where the interview should happen and also if any questions were posed by the interviewee, the researcher would answer the questions. In some cases to make the interviewee feel at ease when they made a revelation, the researcher exposed what she felt in turn, this is a practice espoused by Harrison and Morton (2001). As Aston (2001) put it, 'I believe that a certain amount of disclosure is essential. It facilitates a sense of trust and mutuality and it increases the comfort level of the narrator' (p. 147).

The focus groups with the teachers took place at phase one of the study and again pre and post phase three and four.

Phase 1 – Teacher focus groups (November 2006). These focus groups were carried out following analysis of the questionnaires to teachers and a period of observation, to elaborate on some of the findings of the questionnaire and the observations. Following questionnaire analysis and discussion with the teacher responsible for physical education, it was decided that the teachers would embark on a unit of work in Outdoor and Adventure Activities. The following is a brief summary of the topics contained in the interview schedule (Appendix Gi):

- Knowledge of O&AA
- Previous teaching of O&AA
- Previous professional development (ITE, national in-service or other courses) in O&AA
- Type of support required
- When/where support could be provided
- Teachers familiarity with resource materials for teaching physical education (Primary Schools' Sports Initiative, 2006)
- Integration and O&AA

Phase 3 – Teacher focus groups (March 2007). The focus groups with the teachers took place in the staff room, within two weeks of completion of the unit of work. This timeframe was necessary in order for the Principal to facilitate the teachers'

absence from class as all focus groups took place during school time. The focus group schedule consisted of questions covering the following topics:

- Which methods of support were the most/least helpful?
- Which teaching methodologies were the most helpful/useful?
- Suitability of resources provided
- Conception of physical education
- Changes in competence and confidence levels
- Knowledge of children's perspectives of O&AA
- What improvements could be made to the PDP?
- Is support still required?
- Any contextual changes that could be made to support your teaching?
- Any other comments? (Appendix Gii)

Phase 4 – Teacher focus groups (October 2007 and November 2007). The focus groups with the teachers took place in the staff room, prior to (Appendix Giii) and within two weeks of completion of the unit of work (Appendix Giv). This timeframe was necessary in order for the Principal to facilitate the teachers' absence from class as all focus groups took place during school time. The focus group schedules consisted of questions covering the following topics, some of which were repeated, in order to allow comparisons to be made over time:

<u>Pre teaching O&AA</u>

- Content knowledge
- Pedagogical content knowledge
- Benefits of inclusion of O&AA in physical education programme to children
- Difficulties encountered when teaching
- Conceptualisation of physical education
- Changes in competence and confidence levels
- Knowledge of children's perspectives of O&AA
- Support required/improved
- Collaboration

Post teaching O&AA

- Content knowledge and change
- Pedagogical content knowledge and change
- Difficulties encountered when teaching
- Re-conceptualisation of physical education
- Continued changes in competence and confidence levels
- Knowledge of children's perspectives of O&AA
- Further support
- Personal barriers to teaching O&AA

Children's interviews. Children were included to give voice to their own thoughts and interpretations of the programme than to rely solely on the responses of their teachers interpretations of their thoughts. Grouping children among friends according to Carlson and Hastie (1997) seems to foster comfort and a positive attitude towards interviews and the interview has the possibility of developing into an easy-flowing conversation. The researcher needs to 'sensitive to this power imbalance' (Gubrium & Holstein, 2001). To this end, two children were chosen from each class giving a total of eight per year group in each interview group. The fact that the researcher was giving the children a chance to speak, and more importantly listening to them, encouraged them to take part in the interviews and reduced some elements of shyness.

The interview schedule for the children was piloted with nine children (four male, age range 5-12 years) of similar age to those being researched to ensure the language and style of interviewing was suitable. The most notable observation made during the pilot phase was that children tend to move off the point very easily and it would be important to ensure that they kept to the topic without feeling discouraged or think that what they were saying was neither important nor valued. Opening with general questions eased the children into the process before asking the 'real' research questions.

The scheduling of the children's interviews was carried out in agreement with the class teacher, as the children were taken from class during teaching time. This did not cause any problems and the interviews were carried out in the school library or a vacant classroom. All participants sat in a circle where no-one had an obvious place of

superiority (top of table etc). The children completed a name badge for ease of identification. The group setting made the children feel more comfortable being with their peers. Another method used to ensure the children were comfortable in the interview setting was to allow them to ask questions and to make comment freely, this empowers the children and can break down any perceived authority (Gubrium & Holstein, 2001).

Phase 1 – Children's focus groups (November 2006). The initial children's focus groups were general discussions to help the children feel comfortable and to elicit some general information about their practices and perspectives relating to school, physical education and physical activity. The following is a brief outline of the schedule topics;

- General background on school
- Physical activity at break-times
- Knowledge and understandings of physical education
- Physical education programme
- Knowledge of O&AA (Appendix Hi)

Phase 3 – Children's focus groups (March 2007). Focus group interviews were held with children, immediately following the first stage of the professional development programme (Appendix Hii). This was the children's first experience of O&AA as part of their physical education programme and in most cases it was the researcher modelling the lessons for the class teacher. The schedule addressed the following areas;

- Learning throughout the unit of work
- Most/least enjoyable part of the unit of work
- Physical activity levels during the unit of work
- Knowledge of O&AA
- Should O&AA be part of a physical education programme?
- What other aspects of physical education should be covered as part of a physical education programme in your school?

Phase 4 – Children's focus groups (November 2007). Focus group interviews were held with children, immediately following the second stage of the professional

development programme (Appendix Hiii). This was the children's second time experiencing a unit of O&AA and in most cases it was the class teacher taking the lesson. Some topics were addressed again at this stage of the study to provide an opportunity to compare data over time. The schedule addressed the following areas;

- Knowledge and learning in O&AA
- Most/least enjoyable (part of) O&AA lessons
- Physical activity levels during the unit of work
- Should O&AA as part of a physical education programme?
- Perspectives on physical education

Recording interview data. It is vital in all interview types to have a reliable system of recording information. In the case of the group interview in this study, audio-recording information was vital as it would prove impossible to record the comments of all group members accurately. The transcribing process was beneficial as it enabled familiarity with the interview text as all interview data were transcribed verbatim.

Observations. Gillham (2000) notes that observation involves watching what people do, listening to what they say and sometimes asking for clarification. An observer can be involved in the activity or detached from the activity; the former of these is known as participant observation and the latter as detached or structured observation. Participant observer conducts business with two purposes in mind: (a) to participate in the activities appropriate to the given situation and (b) to observe the activities and people in the situation (Spradley, 1979). He also suggests that the participant observer will 'experience being both an insider and an outsider simultaneously' (p. 57). In this study, I became a 'complete observer' (Spradley, 1979) as I was both a complete participant and an observer. This is the highest degree of participant involvement. At times in the study, it was necessary for this role to change to 'passive observer' where I was in the environment being studied but had little interaction with the people.

Not only are observations a method of data collection but observation is also one of the best ways to learn (Guskey, 2000) whether by observing others or being observed and receiving specific feedback. Therefore an observation schedule (Appendix I) was designed based on pre-service education, teaching practice observation schedules which the researcher was familiar with from use as a supervisor of teaching practice in St

Patrick's College. These observation schedules were originally designed to provide feedback to students following supervisor observed lessons during their teaching practice experience in schools and included both the strengths and the weaknesses of the lessons, which was also the purpose of the observations for this study. In certain instances where lesson observations could not be made, teachers completed lesson evaluations. These evaluation schedules (Appendix J) were also adapted from the lesson evaluation forms used by pre-service students during their teaching practice experience and were designed to encourage the student, or in this case the teacher, to reflect on their teaching.

Field notes. According to Spradley (1979) field notes are the records kept by the investigator of the events specific to the situation being observed and may also be referred to as an interpretive journal. Field notes were taken in the form of a digitally recorded journal throughout the study, noting personal experiences, ideas, fears, mistakes, confusions, thoughts, and opinions. While many of these thoughts and opinions are of my own interpretation they proved to be a useful secondary source of data and are invaluable in supporting and explaining the primary data collected. Also collected as field notes were conversations, bits of information which I might need to recall at a later date, behaviours that were unusual or different, environment and context features, physical diagrams and photos of the environment.

Sampling. When sampling, the size of the sample is determined primarily by the research objective, research question(s) and subsequently the research design (Jaeger, 1997). As this is a case study and a whole school approach to teaching physical education the issue of sampling did not arise. All those invited to take part did so, the only time where sampling was necessary was for the children's focus group interviews. As all children could not be interviewed, a focus group was established from each class group whereby each class would have a male and a female representative in attendance. The individuals were chosen by the class teachers according to the following criterion advised by the researcher:

- One male and one female
- Articulate
- Speak on behalf of the class
- Not necessary for child to be 'sporty'
- Willing to take part

- Informed consent received

The children were chosen by the class teacher as the researcher felt it was in the best interest of the research to ensure that the children were articulate and willing to speak on behalf of the class. Random sampling may have turned up shy, inarticulate children or children whose first language was not English.

Data Analysis

Analysis of quantitative data. All quantitative data were analysed using SPSS for Windows, version 14.0. Data were manually and statistically searched for unexpected values and original data were consulted in order to clarify any unusual set. Data were presented descriptively as means, standard deviations and percentages and where appropriate gender- and age-specific means and standard deviations were calculated. The Pearson, chi-square statistics with standard residuals was used to investigate any categorical relationships in the data. Paired sample t-tests, or Mann-Whitney U tests were conducted to compare differences and binary logistic regression analysis was used to evaluate children's perceptual data around physical activity and physical education. Relevant effect sizes were calculated and reported as r-value. An r-value of 0.10, 0.30 and 0.50 represented small, medium and large effect sizes respectively (Field, 2005).

Analysis of qualitative data. Data were coded and categorised using constant comparative technique, this facilitated the identification of similarities and differences, the grouping of data into categories and the development of propositional statements. A journal was kept throughout the process which recorded the analytical process and methodological decisions taken. The literature was then interwoven with the data and used to confirm or refute findings.

Coding strategy. The qualitative data gathered at each phase of the project were analysed initially, and then tracked individually over time through each phase. All qualitative data were transcribed and the transcripts of interviews, observations and field notes were entered into NVivo (QSR NVivo Version 8). Nvivo was chosen as it can act both as a depository for all data and many simple and more complex searches can be automated. Due to the nature of the study and the large amount of data involved, NVivo proved an excellent piece of software to store, code, cross code, perform many

analytical tasks as well as providing a central place to hold all notes, comments and memos (Figure 3.4). It also became a way of ensuring reliability and trustworthiness in the analysis process. Coding took the format of broad to narrow analysis and then expanding out again to gain an overall view of the themes developed. At each stage of coding any ideas, thoughts, literature relationships etc. were logged as memos/annotations and assigned/linked to the relevant data. Each code/category/theme etc was then carefully defined and recorded.

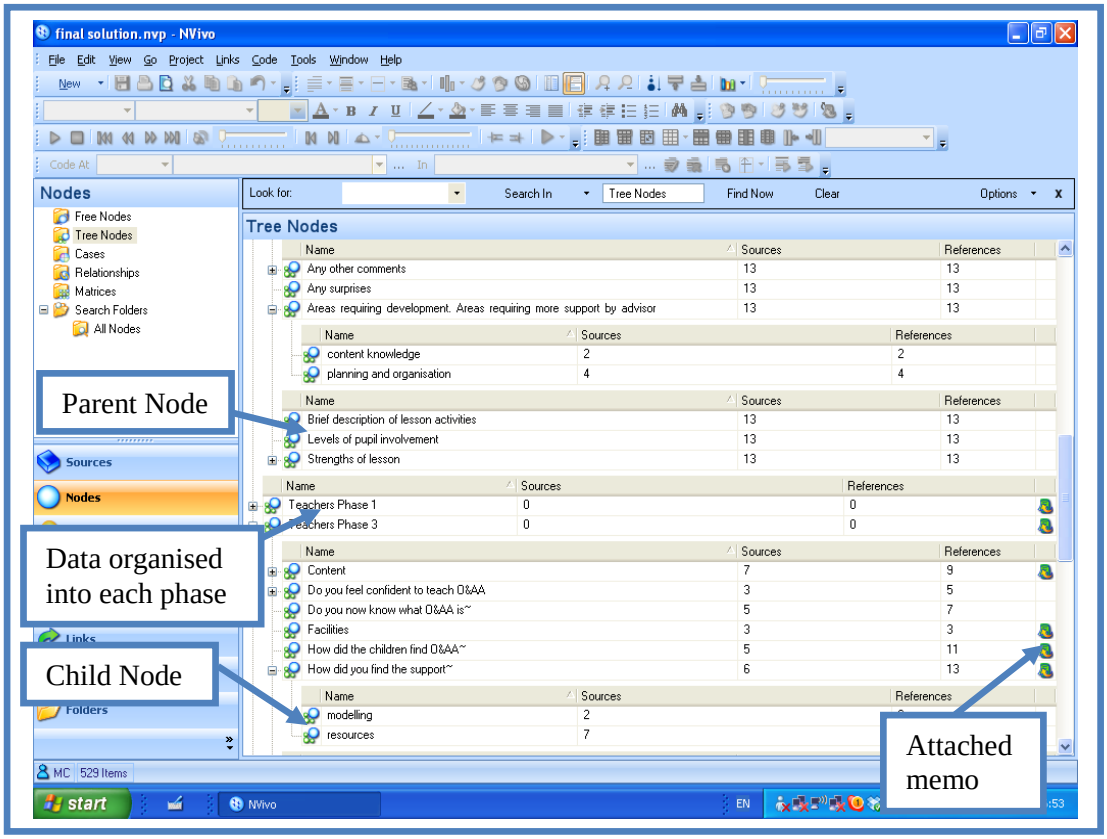

Figure 3.4 Screen shot of data layout (as tree nodes) in NVivo

The following stages were followed through the analysis.

Stage 1 Broad thematic coding. This automated coding was carried out using the questions from the interview schedules as broad themes for analysis. Similar coding was applied to the field notes taken, observations and evaluations as appropriate. These were stand-alone themes or categories which were achieved by coding 'down' from the research question/interview schedule. There was also a list of categories and codes based on a visual analysis of the data which was also used when assigning categories/codes.

Stage 2 Cross coding. The automated coding was examined across each of the participants; teachers, children and facilitator notes (and any other data at each Phase) to establish common links and/or differences. As the data were analysed further and interpreted and read, categories that were discovered and were assigned. These categories came from the data rather than the other way around as in Phase 1. Nvivo allowed both processes to be combined and coding continued. This constant comparative method of analysing data combining inductive category coding with a simultaneous comparison of full units of meaning obtained (Charmaz, 2006; Lincoln & Guba, 1985; Maykut & Morehouse, 1994). As each new unit of meaning was selected for analysis it was compared to all other units of meaning and subsequently grouped with similar units of meaning. If there were no similar units of meaning a new category was formed (Appendix Ki).

Stage 3 Grouping and re-ordering data. At this stage all the themes were categorised using the research question and related questions associated with the study. Hierarchies of categories were also established. Groupings were established where codes were matched to themes and the research question. Sub-themes/categories were established as they arose and any relationships to main themes or other sub-themes identified and linked (Appendix Kii).

Stage 4 Coding on. When the data were coded and assigned categories, it was important to read the categories' content and consider whether there were other places to code it to. The content was selected and coded at the new or existing category. Ideas were beginning to be developed beyond the original coding (Appendix Kiii). Throughout the process of coding, memo-writing was undertaken. Memo writing is a technique advocated by Charmaz (2006), whereby writing memos can 'catch your thoughts, capture the comparisons and connections you make and crystallise questions and directions for you to pursue' (p. 73). Memo writing allows the researcher to explore ideas about categories; they allow propositional statements to be developed. An example of this is outlined below:

Text
He taught the lesson very well. Because I was there, every so often he would look over and say 'is that ok is that alright' and you just check to see if he is doing the right thing but he had it all written down on a card in note form and he had gone through it the previous evening with the other third class teachers so he was very familiar with it.

Coding categories
Pedagogical content knowledge, content knowledge, affirmation, instant feedback, planning and preparation

Memo
The teacher is looking for affirmation – it's the not knowing that's crucial I think to the teacher. Even if the teacher reads the notes/lesson plans and thinks they understand it - how do they know if what they are doing is right? - They have no concept of the content knowledge nor of the pedagogical content knowledge.

Stage 5 Proposition statements. Proposition statements related to each of the themes developed during the analysis of the data were generated. Propositional statements are statements developed from the data – this is what the data are telling us (Appendix Kiv). According to Bogdan and Taylor (1984) 'a propositional statement is a general statement of fact grounded in the data' and as such, propositions are the beginning of revelations yielded by the data. An example of a propositional statement developed from the data in this study was; 'Teachers are afraid to teach physical education'.

Stage 6 Test proposition statements. The proposition statements/constructed theory were then tested against the data. This ensured that all coding stood and that findings were reliable and robust. At this stage credibility was checked and if necessary going back to Stage 2 and recoding data, or ways of demonstrating validity and reliability were established. When the above propositional statement was tested against the data, it was noted that the word fear only appeared once, in relation to a teacher who was afraid she would not teach the skills of a game properly. Although the impression was that teachers were afraid, there was no concrete support for this statement in the data, therefore this statement was discarded and the same process was applied to further propositional statements.

Stage 7 Amending and synthesising proposition statements. The proposition statements were synthesised into cohesive and well supported outcome statements or findings, showing richness and context and outlining points to be made in the conclusion. Taking the example statement at stage 5, the statement was amended to read; 'teachers lack the knowledge and confidence to teach physical education' and this statement was then tested against the data and support was found for the statement. Patterns were also sought across all of the participant data and were examined for

similarities and differences. All these categories were ultimately combined into themes which framed the construction of chapters four and six.

Trustworthiness. In order for the findings of the research to be considered believable the onus is on the researcher to make each stage of the research process visible (Maykut & Morehouse, 1994), for example, detailing the purpose of the study, how the participants became part of the study, the specific setting and participants, the data collection and analysis procedures used and the findings and outcomes arrived at. Mishler (1990) supports this view but adds that the ultimate test of trustworthiness is whether the audience finds the outcomes credible enough to act upon them: 'the key issue becomes whether the relevant community of scientists evaluates reported findings as sufficiently trustworthy to rely on them for their own work' (p. 417).

One way of increasing trustworthiness is to utilize multiple methods of data collection so that the limitations of one method can be offset against the strengths of another (Creswell & Plano Clark, 2007). Observations backed up findings from interviews and finally member checks with teachers during discussions allowed emerging themes to be supported or refuted. Lincoln and Guba, (1985) suggest that prolonged engagement can maximize trustworthiness and in total, the researcher was in the field for twelve months. Persistent observation, the purpose of which is to 'identify the characteristics and elements in the situation that are most relevant to the problem or issue being pursued and facing on them in detail' (p. 304) can also increase trustworthiness.

Triangulation of data. Triangulation has been defined as 'the combinations and comparisons of multiple data sources, data collection and analysis procedures, research methods, and/or inferences that occur at the end of a study' (Tashakkori & Teddlie, 2003). Different methods of data collection provide different perspectives and produce data that potentially have inherent weaknesses regarding the overall aims of a particular research and/or practical obstacles the researcher may encounter (Denscombe, 2003). If researchers exclusively rely on one particular method of collecting data, their interpretation of what they are exploring may influence or misconstrue their interpretation of what is being explored (Cohen et al., 2000). When different methods of data collection are used each method can potentially look at something from different viewpoints, which in turn can be compared and contrasted by the researcher. Looking at things from different viewpoints can corroborate findings and improve validity of the

data. The categories that were developed from the process of coding the teachers' interview data were combined and compared to those that emerged from the analysis of observational/field note data and the analysis of the children's interview data, in this study. An example of triangulation can be seen in Table 3.1.

Table 3.1 Data triangulation matrix

Theme	Teacher	Children	Field Notes
O&AA is inclusive	'They are always talking and encouraging and there was no arguing which I often find I have problems with in teams or maybe it was just the dynamic of it and they go off together.' (FGT_3) 'It was inclusive, everyone was included, that was the whole thing about it.' (FGT_6)	'I think maybe some people would like orienteering more and they get more involved because everyone can do it at the same time rather than in team games sometimes people say oh you are really bad and they think they are no good and when they get the ball they won't pass it to you or anything and …you might just be standing there for ages.' (FGC_3)	'During the intervention from start to finish no child sat out of any lesson. I didn't notice this until the Principal made the comment that he hadn't seen a child sitting out – a sight he was used to prior to O&AA programme.' (FN)

Maintaining rigour. A clear audit trail of the data collection and analysis procedures included keeping a full record of all activities while carrying out the research, through the systematic recording of field notes each day, the safe storage of all raw data (including questionnaires, digital recordings and transcriptions) and details of all coding were logged in a coding journal within NVivo. The systematic coding of qualitative data using NVivo provided a clear audit trail of the analysis highlighted in appendices Ki-Kiv. Following focus group interviews, three of teachers were given transcribed copies of the focus group interviews and asked to reflect if they were a true and accurate account of the proceedings and none suggested changes in the information provided. Checks were used with teachers regularly throughout the interview process and lesson observations to ensure that the researcher's perceptions of the teachers' responses or actions were as the teachers intended. Throughout the study the researcher also attempted to consider alternative explanations for some of the responses made during interviews, for example, when one group of children felt they had too many O&AA lessons, it was in fact due to the number of weeks they seemed to be having the lessons. Although the class only experienced 6 lessons of O&AA they did so over a nine week period which included their mid-term break and a day where the class went

on a school outing, making it seem like they had the lessons much longer than some of the other classes.

Generalisability. To be able to generalise from this research was not an objective of the study. A case study approach was taken as the purpose was to carry out a PDP using a whole school approach, and as this had not been done previously to the knowledge of the author, it was a unique study in its own right. The intention was to understand the case in its complexity and its entirety, as well as in its context (Punch, 2005). Every case is unique, as was the school in this study, and although it may be difficult to generalise from the research findings, it is valuable to be able to inform concepts that can be tested further by research. In support of this Stake (2000) writes, 'The purpose of the case study is not to represent the world but to represent the case' (p. 448). Although all the teachers in the study are unique, they also share many characteristics with other generalist primary school teachers to ensure that we can learn from them. In this respect, every case is important in its own right. In other words, the findings from the propositional statements can be put forward as potentially applicable to other schools or generalisability can be suggested for testing in further research.

Ethical considerations. The researcher was informed by core ethical principles and was guided by the ethical professional code as outlined by Dublin City University. Ethical protocol for this study was approved by the Dublin City University Research Ethics Committee DCU REC/ 2006/027 (Appendix Li). Safeguards were put in place as far as was possible, however the dynamic nature of qualitative research means that it may not be possible to anticipate all ethical dilemmas and in such cases personal judgement and moral values were used (see Appendix Lii and Liii for full details of ethics proposal).

The school has an existing partnership with the college of education in which the researcher is employed, in that it hosts many of the college's students on teaching practice at various times throughout the year. The researcher would also be known in her capacity as a lecturer in education to many of the more recently qualified teachers in the school. The researcher was approached by the school Principal if ascertain if it would be possible to provide the school staff with professional development in physical education as the school was in the process of planning for, and implementing the Physical Education Curriculum (Government of Ireland, 1999b). As a staff they recognised they were in need of professional development and advice in this subject

area. These were the foundations on which the partnership between school and researcher were to be expanded to allow a research study be conducted alongside the professional development provision.

First permission was sought from the school's Board of Management to undertake the study. The design of the study was outlined including a brief description of the methods of data collection to be used including their purpose. Permission was granted by the Board of Management with no restrictions. The school community (both teachers and children) were invited to participate. Nespor (2000) contends that anonymity may never be fully achieved because research is visible and anyone connected with the research is likely to be able to identify the setting and the people within it. According to Duncombe (2005) if one aim of qualitative research is to describe in detail settings and contexts, then keeping such settings anonymous could be construed as withholding important information.

In the case of any adult (Principal and Teachers) involved in the study informed consent (Appendix Mi) was sought and in all cases was given. All children participating in the study, due to their age, had to complete both informed consent (Appendix Mii) and informed assent forms (Appendix Miii). All participants were reminded that participation was voluntary and that they could withdraw from the study at any stage. Participants were given assurances that all data collected with be treated confidentially. All questionnaires were completed anonymously and in the case of interview and other data, pseudonyms were used to protect the identity of the participant. (See Appendix Ni-iii for plain language statements which accompanied the informed consent/assent forms).

Positioning the Researcher in the Study

As the professional development facilitator and researcher in this study, it is necessary to place myself within the research context. Qualitative research by its very nature can never be truly objective (Lincoln & Guba, 1985). A researcher's beliefs and values perform a vital role in understanding what is taking place. According to Maykut and Morehouse (1994) values are embedded in research and are apparent in the way the researcher investigates the issues. My personal history includes a secondary education in a school with a rich and varied physical education programme and strong sporting

ethos. I had experienced a programme which was not common practice in Irish secondary schools at the time.

After secondary school I pursued an undergraduate degree programme, in Sport and Leisure Studies and a Post Graduate Certificate in Education (Physical Education). On graduating, I began my teaching career in a Northern Irish grammar school (second level) where I introduced both GCSE and A-Level Physical Education. I began to examine and moderate the Examination modules in my school, which led to further professional development and collaboration with teachers undertaking similar examinations in their schools.

While teaching in Northern Ireland, I became part of a community of practice, consisting of a number of physical education teachers from the locality. This group shared many things from experience, to resources and sometimes just an understanding ear for the problems we were sometimes faced with in our work. The in-service courses offered to me both as a physical education teacher and a teacher of examined physical education, further opportunities for my own professional development. They instilled in me the importance of professional development and teachers collaborating and learning from each other and also the need for teachers to 'go beyond' the classroom and 'stretch ones wings'. During this time I completed a Masters (M.Sc.) in sport, exercise and health which included education components. This accredited professional development, exposed me to a wide variety of literature and research as well as opportunities to reflect and discuss research with fellow students and course lecturers.

Following re-location to the south of the country, I commenced work as a lecturer in initial teacher education in primary physical education. Preparing students to teach physical education in a primary setting coupled with designing and delivering post-graduate courses for experienced teachers has allowed me to identify the supports that teachers need as they endeavour to plan and implement the physical education curriculum within the larger context of the Primary Curriculum. Facilitating courses at a third level college of education as well as under the auspices of Education Centres and the Irish Primary Physical Education Association in all aspects of physical education, has allowed me opportunities to become very familiar with the content of the physical education curriculum and how it can be adapted for a variety of contexts, which is implicit in the primary sector. The courses I currently teach at third level provide pre-service and in-service students with pedagogical knowledge of physical education, with

particular emphasis on skills based process learning in an active learning environment. Constructivist approaches to learning are utilised and students are given opportunities to discuss and reflect on various aspects of their courses. My professional experience and engagement with research literature have provided me with a firm grasp of the issues being investigated in this study.

This biographical detail is provided to situate myself in the study and illustrate my professional profile which underpins the study and impacts the area under investigation. Peshkin (1988) maintains that it is better that researchers are aware of their subjectivity and the role this subjectivity takes in research rather than assuming that it can be omitted altogether. I acknowledge that being aware of my subjectivity entails knowing the qualities I possess that will enrich the research as well as being aware of ideas and beliefs I possess that could possibly distort my portrayal of the data.

Conclusion

The research design has been outlined at the beginning of this chapter, and a visual representation (Table 3.2) of the data collected is included here, including data collection methods, participants, frequency/duration of data collection and focus of data collection to aid the reader. The findings related to the study gleaned from the use of the selected methods outlined will be discussed in chapters four and six.

Table 3.2 Visual representation of data collection timeline and methodologies

Timeline	Study	Purpose	Participants	Data collection	Qualitative or Quantitative
June 2006 and September – December 2006	Understanding the case (Study 1)	Contextual information about the school, teachers, pupils and physical education programmes within the school	Teachers (N=28) (N=19)	Questionnaire Focus Group	Quantitative Qualitative
			Children (N=605) (N=48)	Questionnaire Focus Group	Quantitative Qualitative
			School	Physical Best Day Observations Field Notes	Quantitative Qualitative Qualitative
March - April 2007	Process Evaluation of the Professional Development Programme (Study 2)	To investigate; • the effectiveness of the PDP • the appropriateness of the facilitation the impact of the work on the teachers and children	Teachers (N=28)	Focus Group	Qualitative
			Children (N=48)	Focus Group	Qualitative
			O&AA lessons	Observation/ SOFIT Field notes	Quantitative Qualitative
October – November 2007	Process Evaluation of Stage 2 of the Professional Development Programme (Study 3)	To evaluate; • if support should be contextualised and sustained. • if teachers' knowledge systems were expanded • if further support is required beyond that already provided and if so, to what extent. • children's learning following the O&AA unit of work.	Teachers (N=27)	Focus Group Self-efficacy scale	Qualitative Quantitative
			Children (N=48)	Lesson evaluations	Qualitative
			Principal	Focus Group	Qualitative
			O&AA Lessons	Semi-structured interview Observations Field notes	Qualitative Qualitative Qualitative

Chapter Four: Understanding the Case

This chapter will provide a detailed and analytical overview of the case, the study school. Contextual information about the school, the teachers, the pupils and physical education within the school are presented. This contextual knowledge was Phase 1 of the study and was used to inform the design and delivery of a physical education - professional development programme (PDP) to support teachers in their teaching of Outdoor and Adventure Activities. According to Patton and colleagues (2011) the role of a facilitator is 'to be cognisant of what teachers bring to a learning experience and to provide them with challenging investigations in realistic and meaningful contexts' (p. 7 - 8). The questions that this phase of the study addressed are as follows:

- What is the participant teachers' background?
- What is current teacher practice in relation to physical education?
- What are the teachers' professional development needs?
- What are the children's practices and perspectives on physical education and physical activity in the school?
- What are the children's physical measurements?

All teachers (N=28), and children (N=605) from senior infants to sixth class, in the study school provided participant and contextual information through the completion of self-report, researcher developed, questionnaires. This information was supplemented by focus group interviews with teachers (8 interviews) to perform a professional development needs analysis and explore further the outcomes of the survey findings, and with children (6 interviews) to establish children's understanding of physical education and to elaborate on the survey findings. A physical best day was undertaken by all children from first to sixth class to establish health and fitness measurements. Field notes were also kept throughout each phase to further inform the study (Table 4.1). The purpose was to allow the researcher to have an in-depth knowledge and experience of the case study school.

The teacher data (qualitative and quantitative) were analysed and presented at the Physical Education, Physical Activity and Youth Sport (PE PAYS) Forum (2007) and the International Association for Physical Education in Higher Education (AIESEP) World Congress (2008). The results were also published in the PEPAYS Conference

Proceedings (Coulter & Woods, 2007). The children's physical health data were presented at the PEPAYS Forum (Emerson, Coulter & Woods, 2007). The data from the children's questionnaire were presented at the PEPAYS Forum (2008) and the Association for Physical Education (AfPE) Conference (2008) and was published in the PEPAYS Forum Conference Proceedings (Coulter & Woods, 2008) and the Journal of Physical Activity and Health (Coulter & Woods, 2011). All published articles are presented in the Appendices, in full, to allow the reader to understand the case in greater detail. The pertinent findings from these studies are presented in this chapter along with the findings from the researcher observations and the children's interviews. It will conclude with an overview of how all of this exploratory data has informed the researcher about the case and how this will impact on the design of an appropriate programme for the school.

Table 4.1 Understanding the case

Participants	**Qualitative**	**Quantitative**
Whole School Principal	Observation and field notes	
Teachers	Focus group interviews	Questionnaires
Children	Focus group interviews	Questionnaires Physical Best Day including measures of height, weight, aerobic fitness, muscular strength, flexibility and endurance

Quotations and their coding. Due to the number of methods of data collection used in this study as well as the various class groupings a coding system was created to support references to the data. Focus group interviews with teachers are abbreviated to FGT. When reference to a teacher from a particular class is necessary, a name and number representing the class the teacher teaches, was added. Similar coding applied to children, for example, FGC Boy 5 refers to a children's focus group interview with a response from a fifth class boy and FGT Mary SI a response from a female teacher called Mary from Senior Infants. Field notes are represented by the letters FN followed by the date on which the note was made. Any reference by the Principal will be referred to as 'IP' in the text.

The School

The study school was a large, suburban, mixed primary school with a number of classes at each level. The school was situated in an affluent area, though a number of children (1%) came from the Travelling Community. Social classes 1 (professional workers) and 2 (managerial and technical) accounted for 59% of the population in the school area in contrast to 32.9% for the national population (Ryan, 2009). There were 28 class teachers and 780 pupils (aged 4 to 14 years) in the first year of the study and 27 class teachers and 815 pupils during the second year. Each class has approximately 29 children and was timetabled for 45 minutes physical education each week. With 26 classes in the school, it was not possible to schedule an hour of physical education for each class each week in the general purpose (GP) hall therefore times allocated were between 40-50 minutes depending on the class. Physical education lessons took place indoors or outdoors, although if the GP hall was in use for other purposes or if inclement weather, the lesson was postponed or cancelled. However, if the weather was good, teachers kept their class outside for at least 60 minutes and on more than one occasion classes were observed remaining outside longer. The duration of physical education provision in the research school was not very different from other schools in Ireland or internationally (Hardman & Marshall, 2009), but children were not receiving the recommended minimum amount (60 minutes a week) outlined in the curriculum.

The school had a broad array of on and off-site physical education facilities. Within the school grounds there was a small indoor general-purpose hall, two outdoor tarmac areas, one of which had two basketball courts marked complete with hoops, and a grassy area for use, weather permitting. The outdoor facilities were used for free play, at break-times by the children. Off-site facilities available to the school included the local parish hall and a large green opposite the school (the church green) which was used sometimes during better weather for team training and athletics training. Teachers shared the equipment and were responsible for its collection and return to the relevant store prior to, and post their lessons.

The school entered many inter-schools competitions each year. These consisted of Gaelic Football, Hurling/Camogie, Cricket, Tennis, and Athletics. A number of coaches from National Governing Bodies (NGBs) provided additional coaching during the school day, supplementing the games programme of the curriculum. These coaches offered programmes in Gaelic Football, Basketball and Cricket.

The professional development environment that existed in the school at this time and on-going throughout the PDP was another important contextualisation that needed to be understood for this study. The Principal explained:

> *Officially we had SESE [social and scientific education including history, geography and science] and drama…we had six days last year. Some of them organised by outside facilitators. Some of them organised within the school…so we'd have had planning days for the subjects. But that would be a very minor part of it really in that we're trying to write plans for the subjects that we delivered the previous year… and then say, we are after introducing the whiteboards, interactive whiteboards…we'd some in-service for them ... so there's a lot going on …and there's huge demands on teachers time, both in terms of class, in terms of, in delivering the actual curriculum to the pupil. But then outside the class in terms of planning within the school…then we also have administrative policies to develop within the school. And last year we had to look at child protection… we'd to develop an anti-bullying policy.*

The support that teachers requested in physical education and their engagement in it should be viewed in light of other professional development happening in the school, which teachers were involved in. The Principal goes onto explain how he hoped that the PDP would provide learning opportunities for the teaching staff and ultimately that the children would experience quality physical education:

> *I suppose it was, I mean, you know, having these shortcomings in how we were delivering PE were obvious to a lot of us…so it was a real opportunity for us to address PE at school level…hopefully an opportunity for teachers to develop, and ultimately for children to get a broader and a richer experience of PE. I'd have felt that the PE in-service that we had [before PDP] was inadequate, in that it was rushed. It gives, threw out a few ideas, the teachers were doing that, the children got tired of just repeating the same ones. I don't think there was sufficient follow-up to the actual in-service days we had, actual official in-service. So I thought it was a great opportunity for the teachers to learn.*

The Teachers

Interviews and questionnaires. The teachers and the classes they taught during the two academic years when this study took place can be seen in Appendix N. In order to understand the teachers' practices and perspectives of physical education, and professional development in physical education, teachers completed a researcher-developed survey and participated in focus group interviews. An overview of this phase of the study is included here, in order to inform the reader about the case. The pertinent findings from this phase were published *'Its all about out of the classroom: The practices and perspectives of the teachers in teaching primary physical education'* (Coulter & Woods, 2007, Appendix B).

Purpose of the Study

The purpose of this research was to develop an understanding of the perspectives of the case study teachers teaching physical education. The research questions to be addressed were;

- What is the participant teachers' background?
- What is current teacher practice in relation to physical education?
- What is the physical education professional development history of the staff?
- What are the teachers' attitudes towards physical education and physical activity?
- What methodologies and strategies are used by the teachers in the teaching of physical education?
- What are the main barriers and supports experienced by the teacher in teaching physical education?
- What are the teachers' professional development needs?

This study reports on the gathering of data, prior to inform the design of a professional development programme in physical education using a whole school approach.

Methodology

The research design employed mixed methods using questionnaires and interviews. A 38 item questionnaire consisting of closed, open and 8 likert scale type questions in 4 sections, and was developed informed by previous research surveys. The sections were a. biographical details, b. your background in physical education, c. you and physical education, d. your experience of teaching physical education. Data from the questionnaire informed subsequent focus group interviews. Focus group interviews reflected teachers' planning groups as these were deemed the most appropriate method of assessing teachers' perspectives in relation to the teaching of physical education in their school. Interviews were facilitated by the Principal. All class teachers (n=28) consented to take part in focus group interviews. All interviews were recorded with the teachers' permission and transcribed verbatim, categorised and themed using systematic content analysis as outlined by Charmaz (2006). Informal discussions took place with the school Principal and were recorded as field notes.

Findings and Discussion

Nineteen questionnaires were returned, three teachers did not complete the questionnaire due to retirement, maternity leave and a substitute teacher who did not return, thus giving a response rate of 79%. The respondents were 78.9% female; average age 39 ±13.95, (range 21-61); average years teaching 16 ±13.88 (range 1-37). One respondent was in their thirties, 26.3% were under 30 and 62.1% were over forty years of age. Half of the participants (42%) had been teaching for five years or less, this means that they would have received pre-service education in aspects of the 1999 Primary School Curriculum. The majority of teachers were trained in, and were teaching to, the 1971 curriculum for most of their careers.

Following analysis of survey and interview data, three categories or themes for discussion were created to best represent the key findings. The three categories include various sub-categories within them which will form the basis for the discussion.

- Current perspectives of class teachers on the teaching of physical education
    - Curriculum – practices across the strands
    - Methodologies – practices and views
    - Barriers and Supports
- Continuing Professional Development
- Contextual Issues

Current Perspectives

Curriculum

Data from the questionnaires suggested that physical education was regularly and consistently taught, with approximately 80% of children receiving physical education once a week for between 30 and 45 minutes. This is below the recommended (but not required) one hour per week, for physical education in the Primary School Physical Education Curriculum (Government of Ireland, 1999b). Interview data suggested that some teachers taught more than this and that teachers in the junior end of the school believe that children should receive physical education more often, although in practice they do not.

The Physical Education Curriculum (Government of Ireland, 1999b), and other literature (Doherty & Bailey, 2003; Jones, 1996), points to the importance of a broad and balanced physical education curriculum, for children in the primary school.

However in this case, games was the predominant strand taught with 95% of teachers teaching five or more lessons in this area. Table 4.2 below highlights the percentage of teachers that taught each strand and how many lessons of each they taught. For example 21% of teachers taught more than 6 lessons of athletics. As can be seen from this table not all teachers taught each strand.

The reasons for this 'games emphasis' are multiple and varied. As the interview respondents stated *'the emphasis on games in school is due to history, tradition, mindset, what you're used to, what the children think PE is'* (FGT Tony 6). One teacher highlighted *that 'a lot is to be said for going to the hall with your beanbags under your arm'* (FGT Ann Marie 1).

Table 4.2 Indicate how frequently you taught this strand this year

Strand	1-2 lessons	3-4 lessons	5-6 lessons	> 6 lessons
Athletics	5.2%	21%	36.8%	21%
Aquatics	10.5%	-	-	-
Dance	5.2%	36.8%	26.3%	5.2%
Games	-	5.2%	10.5%	78.9%
Gymnastics	10.5%	15.7%	36.8%	-
Outdoor & Adventure Activities	21%	15.7%	10.5%	-

Teachers reported that the children expect fun, enjoyment and lots activity during physical education lessons. They also stated that children loved physical education and were enthusiastic about it. Children expect to be outside for physical education or anywhere that's not the class room according to many of the teachers. Doherty and Bailey (2003) outline the high degree of emphasis which children themselves place on games and the extent to which they enjoy this aspect of physical education. Many of the teachers, especially those from first to fifth class, indicated that all the class want is games, that all they're interested in is competition and winning, and if any other strand was taught during physical education time, the children would ask, *'When is the match happening?'* (FGT Alannah 6). The class teachers in the senior classes excuse this thinking by the children, explaining it away with, *'all they had experienced was the old [1971] curriculum and are not aware of the contents of the 1999 curriculum'* (FGT

Sophie 6).

Although the new curriculum was being introduced throughout their time in primary school, the children had yet to experience its implementation. Teachers did have solutions as to how to explain to the children that physical education was more than games, one teacher said *'we could make them more aware of what PE is'* (FGT Eileen 3). However, the pressure of 'keeping the children happy' still came through; *'If you were going to say that this is your PE, it would really want to be that exciting, especially if they are going to consider this as the games and their PE'* (FGT Darragh 6). This feeling did not emerge to the same extent in the junior classes or in sixth where the teachers felt that the children accepted what was done with them during physical education time, and that they were happy doing anything, once they were out of the classroom; *'out of the class is what it is about for them, out of the class'* (FGT Moira SI).

From the evidence presented in the questionnaires and from the responses in interviews there are some discrepancies between what the teachers reported they were teaching and what they actually taught. For example, in the area of Outdoor and Adventure Activities (O&AA) almost 50% of teachers responded that they had taught between 1 and 6 lessons of O&AA during that year when according to interview only one teacher had taught this strand and only to a limited extent. The discrepancy could be due to the fact that teachers were unsure as to what O&AA was when completing the questionnaire. Responses during focus group discussions showed that some teachers thought any off site activity or station teaching in some cases was O&AA; *'sure golf, wouldn't that be outdoor and adventure?'* (FGT Michael 6)

Seventy nine percent of teachers felt O&AA was either important or very important, yet only one teacher was very comfortable teaching it. Outdoor and adventure activities is a strand which was only formally recognised as an element of physical education in the 1999 Physical Education Curriculum in Ireland. Hopper, Grey and Maude (2000) point out the demanding nature of this strand from an organisational perspective. Interview data suggests that this is another reason why this strand is not being regularly taught. As one teacher puts it *'there's an awful lot of organisation based around it and a lot of preparation in it'* (FGT Cathal 3). Safety challenges as outlined by Hopper and colleagues (2000) are also a concern for teachers as another teacher highlights *'the fear of losing children in school grounds'* (FGT Mary JI).

The Physical Education Curriculum (Government of Ireland, 1999b),

recognises that development of skills and the understanding of these skills 'form a significant part of the curriculum in physical education' (p. 3). In interviews teachers agreed with the importance of the development of basic skills in physical education and indicated that this and knowledge were the two areas they felt they were strongest in. Yet questionnaire data revealed a lack of emphasis was placed on skill knowledge and development of pupil understanding of physical education. Teachers (73.6%) placed 'a lot' of emphasis on social development and during interviews it was the area most planned for in physical education at all age levels. Social development usually meant placing a stronger child with a weaker one, or trying to have children mix more in certain classes.

Teaching Methodologies

Direct teaching was reported as the main strategy used by most teachers. The literature also views direct teaching as a desirable approach when a teacher wishes the children to correctly copy a certain skill (Government of Ireland, 1999b; MacFayden, 2000). Additionally this format ensures effective management, as control, is more firmly placed with the teacher. Interview data provided suggested that direct teaching was prevalent, in order to avoid accidents and the teacher wanted to be in control; *'Anxious with class of 31 is that some might disappear'* (FGT Nancy JI). *'Class-size and organisation plays a huge role in the successful teaching of a lesson'* (FGT Sean 5). Integration was rarely used. In interview, when it was mentioned, it seemed to be mainly integration with Irish through use of the basic commands. Guided discovery, the methodology least used by teachers, should be made available to the child and they should be educated in the use of this method in order to develop them as independent thinkers and to develop an appreciation of physical education and what it has to offer. Group teaching although incorporated into lessons seemed only to facilitate social development and dividing classes into teams was also classified as group work.

Barriers and Supports

Barriers

The main barriers that teachers noted were class size, lack of confidence, lack of facilities, location of equipment stores, lack of time and a lack of a school plan for PE. The primary concern for those teachers, who see class size as a constraint, is safety and control. Teachers, especially junior teachers, would welcome an assistant, or 'extra pair

of hands' during physical education lessons in order to help them manage both the children and the equipment. Over a third of all respondents felt lack of confidence constrained them in their teaching of all strands. This lack of confidence was attributed to; lack of subject content knowledge, class size and fear of injury.

A lack of facilities for the teaching of physical education is recognised both nationally and internationally as a constraint in implementing curricula and programmes (Deenihan, 2005; Houses of the Oireachtas Joint Committee on Education and Science, 2005; Irish National Teachers' Organisation, 2004b; Marshall & Hardman, 2000). This school is no different although the school has good outdoor facilities, it has very poor indoor facilities; *'Our lack of facilities severely impedes some PE programmes'* (FGT Eileen 3). Most (94.7%) teachers felt that adequate space indoors and outdoors was 'very important' to the implementation of a quality PE programme.

The location of the three equipment stores seemed to be a problem for all the teachers. The teachers were happy with the school's physical education equipment but availing of it was the difficulty, not just with the stores locations but the fact that on many occasions the equipment wasn't there when you went for it; *'Equipment isn't always readily accessible'* (FGT Kate JI).

Following discussions with the staff and the Principal, it was established the school did not have a policy with regard to the provision of physical education. This was due to the fact that the school is attempting to devise policies and procedures for all twelve subjects of the curriculum. Priorities had been given to certain subjects and to certain areas of school management. Teachers also felt that lack of time was a huge barrier in providing quality physical education; time to plan, time to organise resources when planning, time to set up equipment and time to fit physical education in, in an ever demanding curriculum.

Supports

The main supports that teachers identified were support of key school leaders in physical education, community involvement in physical education and sports provision in the school as well as staff's 'shared vision' to improve in the provision of physical education throughout the school. The Principal was very supportive of staff and providing them with, or the means with which to gain, any professional development they may require. The teacher with responsibility for physical education was also highlighted by staff as very helpful in any planning or needs that they may have

regarding physical education. The physical education programme in the school was supported by community clubs such as Basketball, Hurling, Gaelic Football and Cricket, teachers recognised the contribution of these organisations but realised that they are all games focussed. Teachers also reported supporting each other to a lesser extent and sharing resources and ideas. All teachers welcomed any professional development that might help them provide a better physical education experience for their pupils.

Continuing Professional Development

Twenty of the twenty seven teachers interviewed had undertaken national in-service in PE with only 36.8% of teachers responded to having completed an in-service course in physical education outside of school hours. Three respondents completed courses in physical education, the others were in related areas such as 'healthy teachers, healthy kids' and 'set dancing'. This highlights the confusion some teachers have around the actual nature and content of the subject.

Support Required

All teachers responded that they felt the development of a school plan for physical education should include a broad and balanced programme. This was reflected in their willingness to try to implement new strands, in spite of the noted fears of injury in the areas of athletics (31.5%) and gymnastics (52.6%) and lack of knowledge and confidence particularly in gymnastics and outdoor and adventure activities (42.1%). All teachers felt that 'regular in-service in physical education' and 'adequate advice and support within the school' was 'important' or 'very important'. However, when asked what they could remember from the national in-service days, many of the teachers could remember very little, if anything. What they did remember was that it was 'fun and enjoyable' and that whatever it was, *'it seemed like a lot of organisation'* (FGT Claire 5)

The type of support that teachers alluded to during interview, was mainly that of a visual nature in the form of modelling lessons. This is to be expected as physical education is a practical subject and many non-specialists have difficulty transferring from the written page to action during the physical education lesson. *'I read the materials but couldn't understand them I need to see it live'* (FGT Karen 4). One teacher recommended video recording any future support that would be provided to staff to keep as a resource in the school. Other methods of support requested were

provision of schemes, lesson plans, lesson-notes for use during the lesson and resources to compliment the lesson. Although each school was provided with resource materials for physical education by the DES, in the form of a CD produced by the Primary School Sports Initiative (PSSI) none of the staff had accessed these resources or lesson plans at the time of this study. Many of the teachers did not know of their existence as only one CD was sent to each school principal and as yet the resources were not available on the web. Teachers requested help with the organisation of equipment for the lesson as well as modelling lessons and mentoring them through a number of lessons. It became obvious through the focus group interviews with the teachers that they were enthusiastic and willing to embrace the idea of a physical education professional development programme (PDP). Teachers looked for help and support immediately, as I was available in the school, even at this early stage. Teachers were looking for what I believed to be the 'quick fix', this solution to their problems was one they were accustomed to, through the workshop/ training models offered (Kennedy, 2005; Sugrue et al., 2001; Sugrue, 2002). The interviews that formed part of the research became a forum for discussion about physical education where teachers began to ask questions showing a thirst for information about physical education, its subject content and what constituted 'good' physical education.

Contextual Issues

Timetabling and the organisation of resources are the main contextual issues. The same classes groups do not have physical education lessons in succession which would alleviate the problem of each teacher having to collect, set up and return equipment for every lesson. The geography of the school in relation to the location of classes, the proximity of yards, GP Hall and three equipment stores is also an issue that needs to be addressed. The lack of toilets in close proximity to the GP Hall causes problems for teachers, mainly those with junior classes.

Limitations

Almost a third of teachers' responses were absent, not allowing an accurate picture of the teacher demographics to emerge. The use of this questionnaire highlighted the limitations of questionnaires for the overall study. Many of the responses given in the questionnaires were very different to the responses given by teachers in the interviews and from the observations made. In this phase of the study the focus group interviews

provided a more accurate picture of the practices and perspectives of the teachers to physical education.

Implications and Recommendations

The strand chosen to support first, following analysis of both the interview and questionnaire data, was outdoor and adventure activities. This strand had been taught by only one teacher and therefore had not been experienced by either teachers or children. This was also identified by teachers as an area in which they lacked confidence and subject knowledge.

According to the Primary School Sports Initiative (Houses of the Oireachtas Joint Committee on Education and Science, 2005) it is important at all times that class teachers' fears are allayed about teaching physical education and they should be educated that large parts of the curriculum are 'doable' which do not require specialist knowledge. Hardman and Marshall (2005) and Wright (2002) support this idea pointing out that if pre-service and in-service programmes in physical education for primary school teachers were given more time, funding and recognition then the need for specialist physical education teachers in primary schools may not be an issue. While designing the professional development programme it will be vital to ensure the strand is 'doable' by all teachers as the likelihood will be greater that they will continue to teach this 'new' strand (Keay & Spence, 2010; Talbot, 2008). From the observations and data collection process it is evident, that each teacher's circumstances is very different, even though some are teaching the same class level and all of them are teaching in the same school with the same facilities and equipment. This emphasised the importance of contextualisation for the teacher (Fullan, 2001), not just the context of the school but more importantly the context of their own class (Lyon, Wylie & Goe, 2006).

The recommendations from the findings are; increasing teachers' knowledge of physical education as a subject and also the subject knowledge content required to teach it effectively (Petrie, 2009; Siedentop, 2002) both of which are prerequisites to quality physical education provision; establish a protocol regarding equipment management; ensure timetabling of classes is carried out with all teachers input which may necessitate organisational change (Guskey, 2002b); devise a physical education policy and school plan with staff input; build on the positives that exist in the school and amongst staff ; compilation of resources necessary for strand implementation and

establish the support methods which will need to be employed with each teacher, which will form the basis of the planned professional development programme (Craft, 2000; Keay & Spence, 2010).

The Children

In order to understand the school children's perspectives on physical education and physical activity, the children completed a self-report questionnaire and participated in focus group interviews. Each child's physical health and fitness was also assessed through a Physical Best Day, the methodology and results of this study are included below. Some of the pertinent findings from the questionnaire study were published in the Journal of Physical Activity and Health in an article entitled *'An exploration of children's perceptions and enjoyment of school-based physical activity and physical education'* (Coulter & Woods, 2011, Appendix A). An overview of the findings which were related directly to the design and implementation of the professional development programme are presented here.

Questionnaires.

Purpose

The purpose of the children's questionnaire was to establish their practices and perspectives in relation to physical activity and physical education in order to inform the design and facilitation of the professional development programme.

Methodology

Children from senior infants (Year 2) to sixth class (Year 8) (N=663) were invited to participate in the study. Due to participant age range (5-14 years) and reading ability, a pictorial style self-report measure was used. This was adapted from a previously validated Belgian questionnaire (Delfosse, Cloes & Pieron et al., 1992) for use in an Irish setting. Further modifications were made to clarify and introduce colour to the graphics, thus making it more 'child friendly' (Figure 4.1).

Figure 4.1. Sample page from child questionnaire

Four day test-retest reliability was established, percentage agreement scores (N=84, male, 52%; mean 7.85 years; ± 1.71; range 5-11years) which yielded an overall agreement of 82% for the instrument (Table 4.3) and Cronbach's Alpha value for the enjoyment measure was 0.65 which is deemed acceptable (Field, 2005, p. 668). The questionnaire was a combination of personal, behavioural and enjoyment determinants and used a combination of categorical, Likert and ordinal scoring responses.

Table 4.3 Reliability of PAYS (Physical Activity for Young Children Scale)

Theme	**Example**	**Scale**	**Reliability Score Percentage (%) agreement T_1-T_2**
School Day Affect	Each morning you wake up and think 'another day at school'. This idea puts you in a…	4 pt. Likert scale 1=very good mood 4=very bad mood	76%
Active transport	How did you travel to school yesterday	categorical	76%
Active transport	How did you travel from school yesterday	categorical	98%
Enjoyment	In school what are you favourite subjects (choice of 12 items)	Ordinal	86%
Enjoyment	In school what are your second favourite subjects (choice of 12 items)	Ordinal	83%
Physical Activity Behaviour	What activity do you prefer to do at break-time	categorical	90%
Physical Activity Behaviour	What activity do you prefer to do at lunch-time	categorical	88%
Behaviour	After school what activity do you do first	categorical	83%
Behaviour	If you could choose what activity would you do first	categorical	51%
Enjoyment scale	What do you think of these activities (6 items)	4 pt. Likert 1=love it 4=don't like it at all	Active - 84% Sedentary - 81%
Enjoyment Scale[1]	Indicate the face that best shows how you feel (8 items)	4 pt. Likert 1= yes 4=no	89%

[1] *Cronbach Alpha was established at 0.65*

Estimation of residential distance from school: The actual distance travelled to school was assessed using a detailed street level Ordinance Survey Map of the standard scale 1: 2500cm. Each child's residential address was located on the map and assigned a distance category, where 1= < 0.5km, 2= 0.5km – 1km and 3= >1km, indicating the straight-line distance from residential home to the school.

Pilot Testing

Standardised testing procedures were used throughout the study. Extensive training was undertaken prior to data collection to minimise potential sources of error in map measurement and questionnaire administration. Testing procedures were evaluated in a pilot study (N=146, male, 46.6%; mean 7.19 years ±1; range 6-9 years) minor changes included modifying the pictures used to simplify the questionnaire.

Procedure

Over a two-day period the questionnaire was researcher administered to all participants. The purpose was explained and children were assured that there were no correct or incorrect answers. Page 1, containing personal information, was completed then removed and an identification number assigned and this was the only indicator on the questionnaire. Completion time varied from 10-30 minutes depending on the age and the ability level of the class. Children from first class (year 3) to sixth class (year 8) completed the entire questionnaire with children from senior infants (year 2) omitting enjoyment measure due to its complex language.

Personal Determinants

Demographic determinants included age, gender and class in school.

Behavioural Determinants

The mode of transport to and from school, the previous day, was selected from walk, cycle, car or bus. Only one response, representing the largest proportion of the journey, was selected per participant. Walking or cycling to school was defined as active commuting. Travelling by bus or car was defined as inactive commuting.

Each child had to choose a free play activity they engaged in most often during small break, lunch break and immediately after school. Examples of activities representing sedentary (e.g. talking with friends, playing board games, or doing homework), moderate (e.g., running around, playing but not getting out of breath) or vigorous (e.g., running around and getting out of breath) were given.

Post-school leisure behaviour was assessed by a) what they did first after school and b) what they would prefer to do first after school. Nine pictures of different activities were given, for example watch TV/play computer games, draw/paint, do homework or listen to music. Children could only give one answer.

Active commuting and post-school leisure bahaviour are not reported here as they did not relate to the child's school day but they are available in Appendix A.

Correlates of Physical Activity

Table 4.3 gives item examples and scoring information for all measures assessing the correlates of physical activity. The 'School Day Affect' measure asked children to rate, on a 4-point Likert scale how 'another day of school' made them feel first thing in the morning when they woke up.

From a list of twelve subjects, children were asked to indicate their first second and third favourite school subject from a total of twelve choices - English, Art, Social Personal and Health Education (SPHE), Physical Education (PE), Maths, Music, Drama, Irish, Religion, Geography, History and Science.

Enjoyment of pastimes (specified as games/activities) was first assessed using a six-item instrument. Children were asked to evaluate their feelings in relation to three sedentary activities, namely, watching TV, playing fun games like statues and playing computer games and three games/activities, namely, playing team games like basketball, playing running games like stuck in the mud or tag and getting out of breath while swimming, cycling or running. These findings are not reported here but are available in Appendix A.

Enjoyment of physical activity was assessed using an 8-item questionnaire. Item one reads 'You like playing games with your friends', to which the child indicated their level of agreement with the statement on a 4 point scale with endpoints ranging from 'no' to 'yes'. Level of enjoyment was determined by the aggregate score of all items (range 8-32), a high score indicated a high level of enjoyment.

Data Analysis

Statistical analysis was undertaken using SPSS (Statistical Package for Social Sciences) for Windows, version 14.0. Data were manually and statistically searched for unexpected values and original data were consulted in order to clarify any unusual set. Whole sample and where appropriate gender- and age-specific means and standard deviations were calculated. Data are presented as means, standard deviations and percentages where appropriate. The Pearson, chi square statistics with standardised residuals, was used to investigate any categorical relationships in the data. Relevant effect sizes were calculated and reported as r-value. An r-value of 0.10, 0.30 and 0.50

represented small, medium and large effect sizes respectively (Field, 2005). Mann-Whitney tests were used to compare enjoyment levels by gender. Distance was entered into a bivariate logistic regression model that predicted active versus inactive commuting to school, and controlled for gender and age.

Results

Descriptive Characteristics of Participants

In total of 605 children participated in the study (age range 5-14 years, mean age 8.81 years, ±2.2, 44% female). Those children (n=58) not included in the study were absent from school or class during questionnaire administration; no statistical differences in age or gender with the main sample were noted (age range 6-13 years, mean age 9.05, ± 2.08, 44% female).

Behavioural determinants

Free Play Physical Activity: Break and Lunch-Time: Participation in sedentary, moderate or vigorous activity by gender for break-time and lunch-time is shown in Table 4.4.

Table 4.4 Break-time and lunch-time physical activity levels

	Break-time						**Lunch-time**					
	Boy		**Girl**		**Total**		**Boy**		**Girl**		**Total**	
	%	**(n)**	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**
S	11.5	(39)	29.2	(77)	19.3	(116)	8.9	(30)	16.6	(43)	12.2	(73)
MPA	15.7	(53)	34.1	(90)	23.8	(143)	11.6	(39)	39.8	(103)	23.8	(142)
VPA	72.8	(246)	36.7	(97)	57	(343)	79.5	(268)	43.6	(113)	63.9	(381)
Total	100	(338)	100	(264)	100	(602)	100	(337)	100	(259)	100	(596)

S- Sedentary, MPA – Moderate physical activity, VPA – vigorous physical activity

Although there is no significant difference for gender it can be seen that more boys (72.8% at break-time and 79.5% at lunch-time) than girls (36.7% at break-time and 43.6% at lunch-time) reported participation in vigorous physical activity, whilst girls were more likely to choose sedentary activities. Girls were significantly more likely to report participating in vigorous activities at lunch-time (43.6% vigorous versus 16.6%

sedentary) (χ^2 (2) = 85.47, p< 0.001) as opposed to break-time (36.7% vigorous versus 29.2% sedentary) (χ^2 (2) = 78.84, p< 0.001). Boys were equally likely to be vigorously active at break and lunch time.

Correlates of Physical Activity

School Day Affect: The school day affect measure rated how children felt when they woke up and thought about school. Seventy percent of children reported being in either a *'very good'* or *'good'* mood at the thought of school, with girls (77.3%) significantly more likely than boys (62.9%) to indicate a positive mood when thinking about school (χ^2 =(df = 3) 17.66, p, 0.05, r= 0.2).

Favourite Subject: Forty six percent of children ranked PE as their favourite subject while 78% of children had PE in their top 3 favourite subjects. PE's nearest rival was Art with 27% of children scoring it as their favourite. There was a marked gender difference between boys and girls with 58% of boys reporting that PE was their favourite subject compared to 29.8% of girls (χ^2 = (df = 11) 90.97, p< 0.001, r= 0.39).

Enjoyment of Activities: Children were asked what they thought of 6 different activities, 3 sedentary and 3 active. Playing team games was the most popular activity with 68.9% of children 'loving it' followed by 'getting out of breath while running/cycling/swimming' (62.1%). The 'most liked' sedentary activity was playing computer games (53.4%). Gender differences were noticeable for two activities, boys thought more positively (95% either 'loving it' or 'thinking it's ok') about computer games, than girls (69.5% either 'loving it' or 'thinking it's ok') (χ^2 =(df = 1) 90.97, p>0.0001, r= 0.39). Boys (91.7%) favoured getting out of breath more than girls (74.9%) (χ^2 =(df = 1) 31.68, p<0.0001, r = 0.23).

Enjoyment of Physical Activities: Only first class and above completed this section due to the complex language (n=532). In order to analyse children's enjoyment of physical activity, each response in the 8-item question was scored and level of enjoyment was determined by an aggregate score, a high score indicating a high level of enjoyment. The majority of children (93.8%, n = 488, range 12 - 32, mean 28.59, Sd ± 2.99) answered positively to the questions about how they felt about physical activities, indicating a high level of enjoyment, with only one child not enjoying physical activity.

Boys scored significantly higher than girls ($U = 27339.0$, $p<0.001$, $r = -0.15$).

Conclusions and Recommendations

Physical activities that children do must be fun and more appealing than alternative unhealthy sedentary activities. When we enjoy the activities we do, we want to do them more often. High personal involvement in the action, opportunities to affirm friendships (Coakley, 1993) and allowing children choice in activity selection (Weiss, 1991) are keys to activity enjoyment. Significant adults are primed to structure the environment and exhibit behaviours that enhance children's physical competency beliefs, self-esteem and enjoyment of physical activity. In turn, these perceptions and emotions are the keys to solving the mystery of motivating kids in physical activity (Weiss, Corbin & Pangrazi, 2000).

The social support from teachers in schools can offer many opportunities for children to be physically active. Free-play time, before and after school as well as break-times are key opportunities during the school day to promote and provide enjoyable physical activity experiences. This study showed that both boys and girls participate in moderate and vigorous activities during free-play activity with girls more likely to be vigorously active during the longer than shorter, free-play periods. To increase the likelihood of activity during free-play time, we encourage schools to invest in facilities, equipment and resources such as playground markings, small play equipment, play providers and increased space per child. Physical education class is an 'in school' time which can be utilised better by teachers, although in Ireland the recommended time allocation is one hour, teachers may use discretionary time during the week to provide further 'in-school' opportunities for physical activity. A school ethos which promotes physical activity throughout the school day is invaluable and a Principal who will drive the ethos is vital.

In order for children and youth to develop a lifestyle of regular physical activity to maximise the long-term health benefits, they need to be 'turned on' to physical activity by making it enjoyable (Weiss et al., 2000). This will keep children coming back because of an intrinsic desire to be physically active. Getting children to enjoy physical activity is not a hard sell. Children are built to move, they want to move, however it is not something that should be left to chance and opportunities for physical activity during the school day should be provided by schools. The majority of children in the study (93.8%) indicated a high level of enjoyment of physical activity. However,

even at this young age, boys indicated significantly higher levels of enjoyment of physical activity than girls. The key is to understand what promotes, this enjoyment, harness it and build it into our school experience for all children.

Implications for the current study

Enjoyment should be the focus of any intervention designed to increase physical activity in children and youth, and enjoyment of Outdoor and Adventure Activities should be the focus of the professional development programme in the current study. As physical education was identified as one of the top three favourite subjects by the children this needs to be capitalized upon when preparing the schemes and lessons for the children. The efficacy of the professional development programme is measured not only by teacher change but through exploring the impact of the programme on children and their learning. Examining enjoyment of physical activity and its origins in children and youth could help guide such interventions in the future.

Ensuring that each lesson prepared for the professional development programme includes moderate to vigorous physical activity will appeal to the children and in the majority of cases as reflected in the findings ensure enjoyment of the lessons by the children.

Interviews and observations. A selection of children from each year group was given an opportunity to voice their thoughts and perspectives on physical education, physical activity and the proposed PDP during the focus group interviews. This information was designed to supplement the findings from the teachers' practices and perspectives data and to enable a more holistic review of the proposed PDP. The children's focus group interviews were carried out following the analysis of the teacher's data, therefore a section on children's understanding of Outdoor and Adventure Activities, was included in their interview schedule. The children involved in the focus group are shown on Table 4.5.

Table 4.5 Children participating in focus-group interviews.

Class	Boys	Girls	Average Age (Sd)
First	3	3	7(±1)
Second	4	4	8 (±1)
Third	3	3	9(±1)
Fourth	3	3	10(±1)
Fifth	3	3	11(±1)
Sixth	4	4	12(±1)

Aim. To explore children's perspectives on physical education, physical activity and Outdoor and Adventure Activities.

The interview schedule included semi-structured questions covering the following topics:

- General questions about their school and subjects
- What they understood about physical education
- Break-time physical activity
- What they understood about Outdoor and Adventure Activities

Methodology. Focus group interviews and observations recorded as field notes were used to gather the data. Forty children (20 male and 20 female) participated in the focus groups as outlined in Table 4.5. The interviews took place in the school library, during the school day. Further information on the methodology and methods of analysis can be seen in chapter three. The findings will be reported under the interview topics.

School and subjects. The school environment was described as a large place, with teachers and the Principal being highlighted as friendly by all year groups. The children enjoy the space they have in the school with large yards to run around; *'The yards are quite big so you can run around and have fun'* (FGC Boy 3) and, *'there is a big space to run around'* (FGC Boy 1). When asked about subjects they liked responses echoed those found in the questionnaire. Many of the children preferred Art and Physical Education, with Mathematics featuring also. When asked why they liked these subjects, answers ranged from *'because they are easy'* to *'they are fun'* to *'there is*

no homework'. When asked what they disliked about their school the unanimous answer was *'homework'*.

Break-time physical activity. All children commented on the large free-play space available to them. One child described being lucky that they were allowed run, as she knew of schools where running wasn't allowed for safety reasons. Another child commented that they also got a long break (15 minutes) where other schools only got 5 minutes outside for little break. Fourth class pupils commented on variety of games played in the yard, *'there was always something for everyone to take part in'* (FGC Girl 4). The main activities outlined by all class groups, were variations on chasing games and if children weren't chasing or running they sat and talked. The children would love to be allowed equipment at break-times especially balls. Some children responded that they would like a playground in their yard or even just trees for climbing, with the older girls preferring benches to be provided so that they could sit and chat.

Understanding physical education. The children interviewed had a good grasp on what constituted physical education. Their understanding of 'what is physical education' included discourses from health, physical activity, enjoyment, sport as well as physical education.

Health. Children from many year groups stated that physical education was about being healthy, and some linked it with keeping obesity at bay; *'PE stands for physical education, run around and get fit and maybe if you are a tiny bit obese you might lose weight.'* (FGC Boy 4) and*, 'if you don't do PE you could end up sitting on the sofa and eating fatty foods and watching TV'* (FGC Boy 3). Although we can see that the health message is getting through, there exists some confusion between physical education and physical activity. When asked if physical education was important, the children responded that it was important for weight management and fitness. During a conversation between children during the first class interview the following was recorded; *'I think you get thin from doing games'* (FGC Girl 1), *'you wouldn't get really skinny, you'd get strong from doing games'* (FGC Boy 1*) followed by 'you'd get fit'* (FGC Girl 1)

Physical activity. Many of the children told me that physical education was about running around fast and being active, they liked to get out of the classroom and move about. There was some confusion between the children's understanding of free

play and physical education. Many of the children spoke about break-time and physical activity when asked about physical education. Many saw physical education as a break from the classroom and a chance to get fresh air; *'I think it is important because of the fresh air we need'* (FGC Boy 4)

Enjoyment. Children commented on how they like to be with their friends and doing a variety of games in PE. Though one girl commented that; *'it's not always about being with your friends because sometimes you can have fun with people who are not your friends'* (FGC Girl 3). They liked that it got them out of the classroom and running about outside; *'it's physical education and good to get out of the classroom and have fun for a while'* (FGC Boy 5). Children much preferred when physical education was outside. Children also commented that physical education was about having fun; *'PE is … kind of about having fun'* (FGC Boy 1).

Sport. Games featured prominently when asked about the type of physical education in which they partook. All of the boys and some of the girls reported that they wanted to play soccer both in physical education class and after school, a game that was not included by the school in the physical education or extra-curricular programmes. The senior classes spoke about volleyball, a new game that they had been introduced to. The children often linked physical education with competition and winning*; 'we have lots of teams and we win lots of finals for sport'* (FGC Girl 5) confusing physical education and extra-curricular activities.

The senior classes (3^{rd} – 6^{th}) also described PE as multi-sport in nature whereby each week the class was divided and each group played a different team game, and rotated around the games after 15 minutes. When asked what other activities would they like to do in PE the children answered; *'swimming'* (FGC Girl 4), *'rounders'* (FGC Girl 3), *'variety of things'* (FGC Girl 3) *'rugby'* (FGC Boy 5) and *'tennis'* (FGC Boy 5), again activities from the games strand featured highly. The junior classes (junior infants to second) followed a more comprehensive programme of physical education where they covered strands such as games, athletics, dance and gymnastics. Outdoor and adventure activities and aquatics were not taught. Much of the infant programme focussed on 'movement' and 'playground games' rather than dividing the programme into specific strands although the strands were covered through the programme.

Physical education. All the children knew that PE stood for physical education. Although children knew that games, athletics and gymnastics were part of PE they didn't think aquatics was, as aquatics was not part of the physical education programme in the school. Both boys and girls commented that they found dance embarrassing with some commenting that *'dance isn't PE'* (FGC Boy 6). When asked if PE was like other subjects, children were aware of the physical nature of the subject; *'you don't really use your brain you use your body a bit more'* (FGC Boy 3) and; *'it's more physical, you use more of your body and you use all of your body not just your hands'* (FGC Girl 3). One child in first class (Year 3) made the following comment about PE; *'it's active learning'* and when asked what did she mean by this she answered; *'because its learning but you have to be active and your legs and learn moves you can't do at home'* (FGT Girl 1).

Children didn't want to have physical education everyday as it would get boring doing the same '*game*' everyday (FGC Boy & Girl 6) and it would need to change. Children also reported that; *'if you had PE every day you would have nothing to look forward to'* (FGC Girl 4), and *'you would be happy at the start then you wouldn't still get to like it having PE every single day you start to get bored, playing the same game over and over and over'* (FGC Boy 2). One child commented, *'we just do the same things every week'* (FGC Boy 4). Another child stated that she would '*love it if you did a different sport everyday'* (FGC Girl 5).

The children described 'good' physical education as involving lots of running (first and second classes). Others stated 'good' physical education was when everyone is participating and getting on as a team, *'people trying 100% and they had great fun'* (FGC Boy 4). The children thought that physical education was important but only for the health reasons outlined above. Children had a grasp of the various strands but were anxious that each week they should do something different rather than working through and improving in any one area, unless, of course, it was a game. 'Good' physical education could also be 'if' something new was learned.

When asked what they learn in physical education class, answers centred around learning new games skills with some commenting that you also learn to cope with people who can't play games very well or how to work as a team, one girl commented that; *'you learn how to play sports but sometimes the teachers don't even watch you*' (1 FGC Girl 6). The children's favourite place to do physical education was on the

'*church green'* a large grassy space across from the school, with the school hall being the least favourite place because if its small size.

Outdoor and adventure activities. The children had a better understanding than the teachers of Outdoor and Adventure Activities (O&AA), with many of the children describing outdoor pursuit type activities such as, rock climbing, hiking through the woods and canoeing. The younger children included going to adventure parks and treasure hunts in their descriptions. The children were very receptive to the potential of O&AA during physical education class but were anxious that they wouldn't do it all the time in case it was boring. The senior classes mentioned that they would like to try it but would want to do games too.

Conclusion. The dilemma posed to the design and implementation of the professional development programme, from these findings is how to focus on learning objectives of a lesson while at the same time allowing for individual responses, and the need to encourage child input into the lessons. The goal of helping children become physically active for a lifetime is a difficult one – should we concentrate on giving children more of what they enjoy while moving or should we focus on teaching them the acquired skills to help them enjoy activity in the future (Locke & Lambdin, 2003)? It can be seen from these findings, similar to those of Imwold and Conkell (1994) that some of the children in this school don't know why they have physical education lessons and teachers need to regularly reflect on what they think children may have learned in their physical education classes even when the teachers are sure about what has been taught. Although it may be too early to include assessment into the PDP at this stage of the teachers' learning, the children's voices will be acknowledged during lessons by the researcher and the teachers through questioning and observation. Their voice has contributed to the design of the PDP through their responses to questionnaires and in their focus group interviews and will continue to do so through the PDP in lessons and during further focus group interviews.

Physical Best Day. The children participated in a 'Physical Best Day', where physical health data of height, weight, aerobic fitness, muscular strength, flexibility and endurance were taken. The purpose of this study was to quantify the health related components of physical fitness of the children from the study school to understand more fully the case. The assessment protocol was designed specifically for primary aged children by the Cooper Institute for Aerobics Research (CIAR) and endorsed by the

American Alliance of Health, Physical Education, Recreation and Dance. These data were presented at the PE-PAYS research forum in 2007 in a paper entitled *'A study of selected components of health related physical fitness in Irish primary school children'* (Appendix B). A summary of the work pertinent to this research study is presented below.

Background: Research has suggested that the levels of health related physical fitness in children is decreasing rapidly each year (Dollman, Olds & Norton, 1998; Heeboll-Nielsen, 1982; Johnson, Figueroa, Herd, Fields, Sun & Hunter, 2006). The purpose of this study was to quantify the health related components of physical fitness of the children from the study school to understand more fully the case. *Methods:* Four hundred and ninety three pupils from the school participated in the study. Each participant completed tests of aerobic fitness, muscular strength, flexibility and endurance. The tests included a 20m shuttle run, sit and reach test, curl up and trunk lift which have been approved and validated for use with children (Tomkinson et al., 2003). Anthropometric data including height, weight and BMI were measured using standard methods (Cole et al., 2000). Results were stratified according to age and gender and compared to previously established normative values (Tritschler, 2000). (Protocols for all tests are available in Appendix Lii). *Results:* It was found that 73% of participants were classified as normal weight, 23% overweight and 4% obese. A significant difference in BMI (x^2=58.47, p=0.000), shuttle run (x^2=162.9, p=0.000), curl up (x^2=188.7, p=0.000), truck lift (x^2=80.18, p=0.000) and sit and reach (x^2=27.172, p=0.000) scores was found across age. BMI was found to be negatively correlated with shuttle run (rs=-0.040, p=0.486). When results were compared to previously established normative values for age and gender 65% of girls and 68% of boys were classified as good or above for curl up score, for the truck lift 98% of girls and 97% of boys, for the sit and reach test, 82% of girls and 68% of boys were classified as good. *Conclusion:* These results indicate that a large proportion of the participating children were classified as having a good outcome for one or more test of physical fitness when compared to international normative values. For the purposes of this study, it confirmed that the children in the case study school were reflective of normative values of fitness. Thus any professional development programme (PDP) should consider the physical ability of the children to be taught by the teachers prior to developing a unit of work for the PDP. If the children are below normative values of fitness aspects of a designed programme may eliminate some children from participation, breaching the principles of the

curriculum (Government of Ireland, 1999b) Conducting health related fitness assessments for primary school aged children needs to be handled with care. Effective and sensitive reporting of these results to either parents or children also needs to be investigated. In planning for physical education teachers should be made aware of the recommended guidelines for physical activity and aim for at least 50% of their physical education lessons to include moderate to vigorous physical activity (McKenzie & Kahan, 2008).

Summary

The findings contained in this chapter, understanding the case, provide information on the context in which the study took place. The reader should be familiar with the study school, its staff and pupils prior to the PDP. In summary

- the school is a large school with good outdoor facilities. It is well equipped, though equipment is stored in various locations around the school.
- the teachers taught a limited range of strands with no Aquatics and little to no O&AA being taught
- the teachers lacked subject content knowledge and also lacked confidence in teaching physical education (pedagogical content knowledge). It should be acknowledged that these data were collected using self-report methods as there is no 'knowledge test' available to measure teachers knowledge or pedagogical content knowledge of physical education.
- the teachers were willing and positive about the opportunity to receive professional development in the area of physical education.
- the children enjoyed physical education (78% ranked it in top three favourite subjects) and were also willing to take part in the PDP. They were an active group of children who were very competitive and they understood physical education to consist mainly of games but also espoused the subject's health benefits. The results of the children's physical measurements were generally very good and the PDP would ensure that recommended activity levels were achieved within lessons.
- both teachers and children had a confused understanding of physical education.

The main findings from this chapter which will inform the research design are as follows:

- The strand identified as the starting point for the PDP was Outdoor and Adventure Activities as only one of the teachers taught this strand previously and the teachers had little or no subject content knowledge in this area.
- The teachers must gain confidence and competence in teaching physical education.
- Resources and materials would have to be sourced for the PDP.
- The PDP should aim to expand teachers teaching methodologies beyond direct teaching and improve children's learning experiences.
- Teachers wanted a PDP which is relevant to them in their class teaching.
- Teachers were encouraged by the fact that all the staff would participate.
- The PDP should aim to show teachers and children what physical education is and that the physical education curriculum is doable, within their context.
- The PDP should aim to offer children a broad variety of activities which are fun and enjoyable, reaching recommended activity levels, while ensuring that quality learning is occurring.

The findings from this chapter along with the research described in chapter two informed the PDP design, which is outlined in chapter five. Having established an understanding of the case, activities and resources would need to be sourced and/or designed which would support the curriculum and could be facilitated in the school's context. Teachers' needs were varied and each class context was different therefore individualised professional development was to be investigated and incorporated into the professional development programme design.

The research in study one – understanding the case – used mixed methods, and based on the findings of each of the methods it was decided that qualitative methods would be the primary methodology used during the next phase of the research study. The benefits of qualitative research methods are outlined in chapter three however some of the benefits based on chapter four findings are outlined briefly here. Focus group interviews would provide the study with the in-depth and rich data that would be

required in order to evaluate the process and impact of the professional development programme more fully than quantitative methods. The use of focus groups would ensure leadership by the Principal in providing a time and place for focus groups to occur and also allow time for discussion and reflection by both the teachers and the children. This facilitation of focus groups would allow teachers time to discuss and reflect as necessary on the professional development they were experiencing while simultaneously collecting research data. Observations throughout the planned programme supported by field notes would further enrich the data.

Chapter Five: The Development of a Professional Development Programme in Outdoor and Adventure Activities

The purpose of this chapter is to provide a description of the professional development programme, its guiding principles and how it was facilitated.

Aim and Focus of the Professional Development Programme

The teachers in this study indicated that they lacked content knowledge in Outdoor and Adventure Activities (O&AA) (chapter 4; Coulter & Woods, 2007), and according to the literature teachers are rarely offered opportunities to learn more about physical education subject matter(Ward, 2009). Teachers need numerous opportunities to engage with subject content and to develop their understanding of the nature and content of physical education (Borko & Putman, 1996; Cochran & Jones, 1998). By focussing on content knowledge initially the PDP could then be developed to facilitate other aspects of physical education. According to Siedentop (2002, p. 368) 'you can't have pedagogical content knowledge without content knowledge, and all advances in pedagogy in physical education can't change that simple truth'. The content focus therefore is specifically on the O&AA strand of the Physical Education Curriculum (Government of Ireland, 1999b). It was felt that it was beyond the capabilities of the teachers, at this early stage of the PDP, to include other content aspects such as health-related fitness and formative assessment. A number of specific objectives related to the findings in chapter four were addressed in designing the PDP as follows:

- Enable teachers to develop an understanding of the content of the O&AA strand of the curriculum and the teaching methodologies recommended for its implementation
- Utilise the school facilities to their maximum in the implementation of O&AA
- Include fun, enjoyable and physically active experiences for the children including some element of competition
- Provide resources and materials required to implement the O&AA strand
- Be flexible in the type of support provision as identified by individual teachers

- Encourage discussion and reflection on all aspects of the lessons, such as suitability of content.

The Design of the Professional Development Programme

The provision of a PDP that would prepare the teachers, a very diverse group, to teach O&AA across the school demanded careful attention. Initially, the literature on professional development, teacher knowledge and teacher change as outlined in chapter two, coupled with the findings outlined in chapter four, underpinned by social constructivist theory, informed the PDP design. A summary of these considerations pertinent to the design and facilitation of the PDP are outlined as follows:

- Recognise the diversity of the teachers and acknowledge their learning preferences within their individual contexts
- Engage the teachers in the PDP process itself, be flexible and allow for negotiation and encourage collective participation
- Introduce new techniques and provide for active learning using concrete experiences through modelling and other support methods ensuring all reflect good practice
- Provide concrete resources and materials relevant to each class for each teacher ensuring content emphasises skill development in a continuous and progressive way
- Encourage reflection and questioning by teachers to consolidate learning
- Allow teachers to practice where willing and ensure feedback is provided
- Be informed by the curriculum (Government of Ireland, 1999b), teacher guidelines (Government of Ireland, 1999c) and the resource materials for teaching primary physical education (Primary Schools' Sports Initiative, 2006) as core texts
- Evaluate regularly to ensure the aims of the PDP are meeting the needs of the teachers and children

Social constructivism concerns the way in which people construct meaning in their world. The idea is that the teachers can actively construct or build up new knowledge through this contextualised PDP rather than just absorbing information from the facilitator or written resources. Therefore, a constructivist learning environment, where opportunities for learning were made available to the teachers (Fosnot, 2005),

was developed as an element of the PDP, promoting active learning. Kirk and MacDondald (1998) argue that constructivist learning is multidimensional therefore various teaching methods should not be ruled out but be seen as on a continuum with instructional methods at one end and constructivism at the other. This study was informed by the social constructivist approach and consequently opportunities for learning became a collective process involving the whole school and through the teachers' interactions with the facilitator (Patton, Parker & Neutzling, 2011), each other, their environment and the children.

Therefore, social constructivism, embodied in the theory of cognitive apprenticeship (Collins et al., 1987; Collins et al., 1991), in Caffarella's Interactive Model of Programme Planning (Caffarella, 2002) and in Joyce and Showers Model of In-service Education and Training (Joyce & Showers, 1988) aligned with the principles of effective physical education professional development provided a framework for the development of the PDP. The framework is as follows:

1. Context knowledge and developing a partnership
2. Negotiating programme implementation
3. Developing the programme (resources and materials)
4. Formal communication of information and theory
    a. Modelling: using theory of cognitive apprenticeship
    b. Simulated Practice: trying out new skills in controlled conditions
    c. Coaching for application: support while practicing the new skill
    d. Feedback: discussion and reflection on outcomes of the above
5. Evaluation

Context and partnership. The first stage was concerned with becoming knowledgeable of the context in which the PDP would take place, and to develop an understanding of the study school. Additionally, partnership to enhance the PDP facilitation was to develop. This was possible as a result of understanding the case (chapter 4). Through spending time in the school the researcher became familiar with the physical context of the school and came to understand the school culture from the teachers' and the children's perspective. This knowledge gave the researcher guidance on how to plan and implement the body of content necessary in the PDP. In keeping with social constructivist theory, learning would be facilitated in context where it has been proven to be most successful.

All the class teachers in the school were involved in the PDP (28 teachers year 2006-2007 and 27 teachers in 2007-2008 – Appendix O). The school has an existing partnership with the college of education in which the researcher is employed, in that it hosts many of the college's students on teaching practice at various times throughout the year. The researcher would also be known in her capacity as a lecturer in education to many of the more recently qualified teachers in the school. These were the foundations on which the partnership between school and researcher were to be expanded, specifically in the area of physical education.

Negotiating PDP implementation. Component two of the planning framework was to negotiate when the PDP would take place and what it should consist of. It was decided based on the findings in chapter four and the time of year, to start the whole school PDP with O&AA during term two, March – April 2007. A break would follow this to allow time for consolidation and review for both the teachers and the researcher. The teachers were free to teach any aspect of physical education they wished during this time. It was considered very important that teachers should have time available to them to allow them to apply what they had learned initially in the PDP with the continued support of the researcher as necessary, therefore teachers agreed to teach the O&AA strand with continuing support early the following academic year (October-November 2007). As the PDP was contextualised there was no negotiation as to when during the school day the PDP would take place. The unit of work consisted of six lessons, each of which took place during the classes' timetabled physical education slot (Appendix P). Due to school closures for various reasons (elections, religious days of obligation, staff meetings etc.) it took nine weeks to complete the unit of work for the entire school.

Development of the programme (resources and materials). In the programme design development it was important to determine the scope of the programme that was feasible. Outdoor and Adventure Activities could consist of a broad range of activities and learning experiences, however some of these experiences can be costly, for example water-based activities such as canoeing, or may require going off site. Therefore, the decision was made to focus the programme specifically on the content of the curriculum (Government of Ireland, 1999b) which could be taught on-site and where possible to include additional activities and materials to support these activities. These additional resources were chosen for their suitability and relevance to the O&AA aims and objectives. These resources formed an essential part of the PDP as

they enabled the teachers to teach according to the suggestions made in the schemes and lesson plans.

Much of the physical education literature highlights the importance of pedagogical content knowledge in teachers' ability to make physical education accessible to their pupils (Graber, 1995; McCaughtry & Rovegno, 2003; Rovegno, 1994). The opportunities provided during the PDP to increase teacher's content knowledge laid foundations on which to build pedagogical content knowledge. The modelling of the lessons by the facilitator would also provide teachers with the opportunity to observe and question pedagogical content knowledge. Teachers would observe the facilitator teaching his/her own class and would be able to see not only 'what' (content) to teach but also 'how' (pedagogy) to teach it.

While undertaking the review of literature on professional development it became obvious that without adequate resourcing, professional development might be at best problematic and at worst futile (McCaughtry et al., 2006). Therefore it was vital that the resources necessary were available for the teachers. The school had excellent provision of general physical education equipment but had poor instructional resources specific to O&AA. The teachers were not familiar with the subject content knowledge; they were unsure which resources to source and/or how to source them, therefore, it was necessary to supply these resources as part of the programme. When the curriculum was published in 1999, teachers were not provided with resources nor during national in-service roll-out were they given any specific guidance on instructional resources. It seems strange that teachers would receive workshops mediating the O&AA strand but when they return to school they would not also have the resources to implement these changes. In designing and collating the resources it was hoped that they would positively influence the change process. According to McCaughtry and colleagues (2006), although rarely addressed, resources are critical for schools seeking change but more importantly, there is a 'noticeable gap in the literature documenting the importance of resources in school performance involve(ing) the non-existence of analysis of what resources mean for physical education teachers' (p. 222).

All teachers were provided with a folder which contained a scheme of work (Figure 5.1) (Appendix Qi-Qiv), 6 lesson plans (one per week) (Appendix Ri-Rviii) and tips for teachers about to teach O&AA (Appendix S). All resources were relevant to each teacher's class level. The resources were informed by the following documents:

- The Physical Education Curriculum (Government of Ireland, 1999b)
- The Physical Education Teacher Guidelines (Government of Ireland, 1999c)
- Resource Materials for Teaching Physical Education (Primary Schools' Sports Initiative, 2006)
- Junior Certificate in Physical Education documents (www.jcpe.ie)
- Norfolk County Council, Physical Education Support Service – Areas of Activity (http://schools.norfolk.gov.uk)
- Finding the Griz (Martin, 1997a)
- Hunting the Griz (Martin, 1997b)
- Outdoor & Adventurous Activities for Juniors (Balazik, 2003)

Scheme of Work for Physical Education

Strand – Outdoor and Adventure Activities
Class – 1st and 2nd
Duration - 6 lessons each

Resources
Control cards, Record cards, benches, activity cards, maps, photo orienteering cards, crayons, blindfolds, simple equipment such as cones, hoops, caterpillar run, bean bags, ropes, plastic bags etc

Expectations / Aims
Children should be able to;
- use simple maps,
- respond to a challenge they are set,
- work co-operatively with others,
- develop trust
- discuss how to follow trails and solve problems,
- comment how they went about tasks,
- use ideas they have learned from one task to help them solve another,
- recognise other possible approaches

Cross curricular links/Integration
- Literacy/Numeracy and Oral Language Development – use of control cards and simple tasks as well as describing what they did and how.
- SESE – early use of maps, revision through history/geography trails
- SPHE – myself and others – trust activities
- Drama – scenarios based on challenges that can be discussed in class/physical games/sensory games

Organisational Strategies
Children work individually, in pairs and in groups.
Some activities are whole class while others are carried out in grids or stations

Warm Up *(From PSSI – Warm Up Bank)*
Pulse Raiser – Tails, bean game, ship to shore (advanced), peg game (2nd), stuck in the mud
Stretches and Mobility – See Be Active Programme booklet/Action for Life

Activities
Walking
Scavenger Hunt – lists of items with clues/memory hunt
Matching Pairs – opposites, related objects, dice, rhyming words
Hunt Relay – words from reader, seasons, months, jigsaws,
Walk with a purpose incorporating aspects of other curricular areas (maths trail, SESE etc)
Orienteering
Revise directions
Use of control cards using shapes and numbers (1st)
Photo star orienteering and memory star in school grounds
Snake walk/objects and plans (2nd)
Outdoor Challenges
Shuffle Pack – first names, birthday month, birthday date
Stepping Stones – one less hoop than person, use discs rather than hoops
Pass the Hoop – smaller hoops, racing hoops
Blind Trail – using equipment to go around/through
Caterpillar Walk – using caterpillar run going backwards and forwards
Obstacle Course/challenge trail – done blindfolded with partner guiding them
Tangle twister - (2nd)
How many in a hoop?
Paper collect
Blind Animals

Understanding and Appreciation of Outdoor and Adventure Activities
To observe what they have done and use their observations to improve performance
Describe their own and others roles in activities
Work cooperatively with others to solve challenges
Ensure own and partners safety while carrying out activities

Cool Down *(From PSSI – Cool Down Bank)*
Cool Down 5,7 and 8
Stretches from Be Active booklet/Action for Life

Assessment
Assessment: (formative)
Observe and record aspects of (a) skill development (b) social development (e.g. co-operation with group) (c) understanding and appreciation (d) general 'fitness' level (e.g. able to sustain skill practices for duration of lesson) (e) attitude of child to activities (e.g. enthusiasm, tolerance, disinterest) in each lesson.
Assessment: (summative)
Reflect on the aspects observed above after each lesson and record achievement for one group of children in class

Points to Note
To develop the children's understanding, you need to
- Show, support and explain
- Observe their actions and question their approach

- Intervene to suggest ideas and teach new skills
- Give the children regular feedback on how they are getting on

Figure 5.1 O&AA scheme of work for 1st and 2nd class

The lesson plans contained detailed instructions for the sequence/structure of the lesson, specific learning intentions linked to the curriculum, activities, assessment and in some instances questions that would need to be asked to develop learning. The key feature of the lesson plans were as follows:

- Each lesson included a warm up, a specific skill to be taught, time for the children to practice the skills and engage in other activities.
- The main activity was based around orienteering activities, with activities on walking and/or outdoor challenges and/or understanding and appreciation of O&AA.
- Teaching points were highlighted on each lesson.
- Continuity and progression from Junior Infants to Sixth class was evident.

Lave and Wenger (1991) emphasise the importance of contextualised learning and suggest that practitioners should generate knowledge within the practice in which it would be required. Therefore, all materials were sourced or constructed to fit the case study school to ensure teachers had what was required for them to teach a lesson. The following is a brief list of the type of resources that were constructed:

- Maps for each class level and for activities such as point to point orienteering, star and photo orienteering were drawn and laminated (Figure 5.2).
- Photographs were taken of various places and objects around the school for photo orienteering for each class level (Figure 5.3).
- Controls and control cards for each class level for orienteering
- Scavenger and treasure hunt clues/worksheets

(See Appendix Ti-Tvii for further samples of resources)

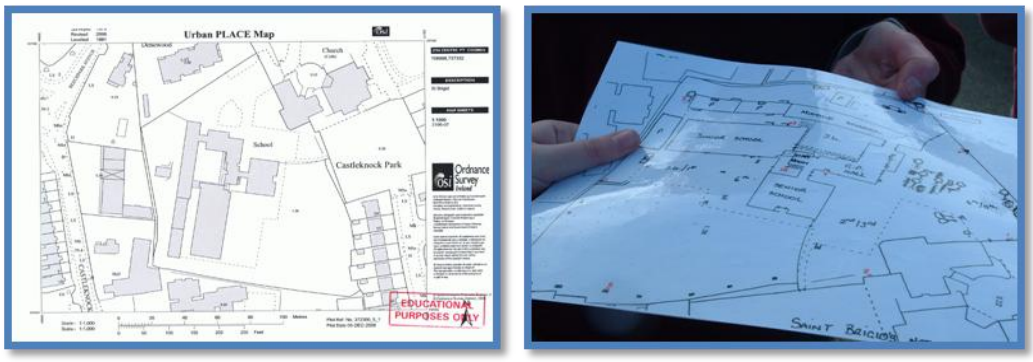

Figure 5.2 Ordinance survey map adapted for school use

Figure 5.3 Sample photographs for photo orienteering

Resource and material organisation. To assist the teachers with their class management, the equipment was divided into boxes containing the relevant equipment for each class level. The boxes were kept in the junior PE store for access by junior classes and the main PE stare for access by senior classes. The boxes also related to the strand units of O&AA therefore there were two orienteering boxes; one for maps and one for photos, a challenge resource box (Sample challenges - Figure 5.4) and a walking resource box. Another box contained clipboards, pencils, record sheets for the various activities. Larger pieces of equipment were also available in the physical education stores, such as cones and hula hoops.

Figure 5.4 Sample challenges – Blind Trail and Hula Hut (blind-folded version)

One of the findings from chapter four was that the stores were very unorganised (Figure 5.5) prior to the PDP and on completion of materials and resources the stores were organised so that all resources, materials and equipment were accessible (Figure 5.6).

Figure 5.5 Main store room prior to organisation of equipment

Figure 5.6 Main store room following organisation of equipment

As the physical education resources and equipment were shared by all teachers, it was important to establish safe storage and ensure they were available for everyone's use. The help of the Principal was enlisted (McCaughtry et al., 2006) with the aim of a new culture of respecting and returning equipment and resources becoming part of the professional development programme.

Formal communication of information and theory. Having designed and prepared the content for the programme, the next stage was providing the teachers with an experience of learning that would enable them to become confident and competent teachers delivering a programme of O&AA to children in their class (improving

pedagogical content knowledge). Social constructivist learning emphasises a person's active involvement with in their own learning and suggests that learning will be more effective when it is active, interactive and authentic (Dunscombe, 2005). Through experience, reflection, interaction and discussion teachers can construct understanding and knowledge. Vygotsky (1978) also identifies the need to place learning in context, linking the constructivist view that learning should be authentic, contextualised and situated. Knuth and Cunningham (1993) noted that:

> An important aspect of this approach is the insistence that learning take place embedded in the contexts to which it is most relevant in everyday life and with which the students are personally involved (p. 164).

The setting for this learning was the teacher's own teaching context i.e. their own class within their own school. It was important when facilitating the PDP that it allowed flexibility to adapt to the needs of individual teachers and their specific context. The PDP was planned as follows;

Objectives.

- To introduce the teachers to the O&AA strand of the curriculum.
- To explore a range of O&AA appropriate for a six week (one hour a week) O&AA programme in primary schools over two six week blocks.
- To enable the teachers to provide guidance to children undertaking the activities
- Teachers were expected to experience all six lessons at stage 1 of the PDP and a minimum of four lessons should be taught at stage 2.

Introduction to the curriculum. The content of the O&AA strand was explained to teachers in written form, prior to the PDP and again midway through the PDP prior to the teachers embarking on teaching the O&AA strand on their own (Appendix U). Teachers were given schemes of work for O&AA and 6 lesson plans appropriate to their class level supplemented with a warm-up and cool-down information, containing age appropriate pulse raisers, flexibility activities, mobility exercises and pulse lowering activities. Teachers seemed happy with the resources at this stage and they were asked again following each stage of the professional development programme if they would like to contribute/change any of the resources and their responses are reported in subsequent chapters.

Teachers will explore a range of O&AA. Teachers engaged with the materials, resources and equipment and explored them over 12 one-hour lessons (carried out in 2 six week units of work in concurrent academic years). The exploration of activities was supported during the PDP through the following options:

- Modelling of complete lessons
- Modelling of activities within a lesson
- Simulated practice/Team teaching – where the teacher and researcher taught together, each teaching a different aspect of the lesson or each working with different groups.
- Simulated practice/Coaching for application - helping with organisation of equipment, placing of controls for orienteering for example
- Coaching for application/Feedback - provide feedback to teachers who taught the lessons or aspects of lessons themselves
- Lesson briefs - time spent with a teacher going through the lesson plan to ensure the teacher was happy with the content prior to its delivery
- Feedback - discussion and reflection on outcomes of the above

The level of teachers' engagement with the support outlined above, during the implementation of the PDP, is described and discussed in detail in chapters six and seven.

Enable the teachers to provide guidance. Teachers explored issues underpinning the teaching of O&AA such as pair and group work, maximum participation, teaching styles, instruction giving, technical language, observation of children and feedback. Given the very nature of physical education, many of the activities involved active learning by the teachers. The teacher will participate in an activity and it will be through this participation that they will learn how to 'teach' the activity:

> The individual learner is not gaining a discrete body of abstract knowledge which (s)he will then transport and reapply in later contexts. Instead she acquires the skill to perform by actually engaging in the process, under the attenuated conditions of legitimate peripheral participation (Lave and Wenger, 1991, p. 29)

In addition to the curriculum related content that formed the PDP, teachers also experienced additional PD around warm-ups, cool-downs and flexibility. Although how the PDP was to proceed within the school is outlined above, the actual implementation of the PDP with each teacher and class within the school is outlined in chapter 6, process investigation and impact of the PDP.

The Implementation Schedule of the Professional Development Programme. The implementation of the PDP in O&AA began at the end of February 2007 with 28 teachers. Following the O&AA PDP, teachers returned to their scheduled physical education programme of athletics. During the first term of the academic year 2007-2008, O&AA was scheduled. It took place from early October to mid-November 2007. The focus during this time was on teachers teaching the O&AA programme themselves with reduced support. There were 29 teachers in the study school, six of whom were new teachers to the school and had not been involved in the initial PDP and 3 teachers whom had changed class level within the school. Two teachers (NQTs) were following a different programme in order to achieve their Diploma in teaching and did not participate in the PDP, therefore, 27 teachers took part in the PDP at stage 2. The PDP, except for one senior class outing to a local park, took place on-site using all facilities that the school could offer. Table 5.1 presents an outline of the timeframe related to the implementation of the PDP in O&AA.

Table 5.1 Outline of the implementation of the PDP in O&AA

Date	Details of Implementation
Nov/Dec 2006	Interviews and questionnaires with teachers and children to understand the environment
Dec/Jan 2007	PDP design and preparation of resources and materials
March-Apr 2007	Implementation of the PDP stage 1
April/May 2007	Evaluation of stage 1 implementation
May/June 2007	Teachers continue with athletics programme
July/August	Summer holidays
September 2007	Return to school and games programme. Preparation for PDP stage 2
Oct/Nov 2007	Implementation of PDP stage 2
November 2007	Evaluation of stage 2 implementation

Conclusion

This chapter has provided a description of the process of designing the PDP, to prepare teachers to teach the Outdoor and Adventure Activities strand of the Primary

Physical Education Curriculum (Government of Ireland, 1999b). The scope of this programme is broad as it was designed to change teachers' behaviours by having them implement a new strand to the school's physical education programme, with their children. When deciding on a model of professional development, the most important aspect is its applicability to the particular school situation. The findings from chapter four were vital in deciding the programme model as not only did it inform the design in relation to teacher practice and perspective, but also the researcher was informed about the school, its equipment, resources, school site, children's capabilities and practices as well as their perspectives on physical education and O&AA. The aims and objectives of the PDP were described as well as its content and facilitation. In conclusion the phased implementation of the PDP was described. Chapter six will describe the findings of the process and impact of the professional development programme through stages 1 and 2 of its facilitation.

Chapter Six: Process Investigation and Impact of the Professional Development Programme

Background

Primary school teachers, in Ireland, feel incompetent, lacking in confidence, worry about safety issues and blame insufficient initial teacher education and inadequate in-service for their in-effective teaching of physical education (Coulter et al., 2009; Deenihan, 2005). The ever expanding curriculum and curricular reform is eroding time spent on physical education in schools. Primary school children are not receiving the recommended one hour of physical education each week (Hardman & Marshall, 2009; Woods et al., 2010) nor are they experiencing a broad and balanced curriculum (Deenihan, 2007; Hardman & Marshall, 2005). Other barriers identified to teaching a quality programme of physical education has been highlighted as; poor facilities (Darmody, Smyth & Doherty, 2010; Fahey et al., 2005) and limited teaching styles (Graham, 2008; Hastie & Martin, 2006).

Primary schools need well informed and motivated teachers (Coolahan, 2003; Organisation for Economic Co-operation and Development, 2005). If classroom/generalist teachers are provided with opportunities for learning in physical education, their fears may be allayed and according to the literature they are the best people to teach physical education in the primary school setting (Carney & Howells, 2008; Council of the European Union, 2007). If the classroom teacher has been identified as the best person to teach physical education then effective professional development in primary physical education is required for teachers to improve their content and pedagogical content knowledge and this in turn should affect children's learning positively.

Effective professional development should aim for the optimal mix (Guskey, 1994; 2000) of features to achieve the best possible outcome. The following features as discussed previously, informed the design of the PDP and focus on teacher learning needs (Clancy et al., 1994; Guskey, 2003; Teaching Council, 2010b); contextualisation to the teachers teaching environment (Armour & Duncombe, 2004; Betchel & O'Sullivan, 2006); inclusion of resources and materials focussing on content knowledge (Faucette, Nugent, Sallis & McKenzie, 2002; Keay & Spence, 2010; Petrie, 2009); collaboration between teachers and teachers and facilitators (Cordingley et al., 2003;

Rebore, 2004); follow-up and feedback (Guskey, 2003; Maldonado, 2002); and involves encouragement and pressure to change practice (Kabylov, 2006). Most importantly, professional development must be evaluated throughout the process to ensure effectiveness (Caffarella, 2002; Guskey, 2002a; Muijs et al., 2004).

The professional development framework was developed for this study based on these key features, the initial study, (understanding the case) and an adapted model of programme planning as outlined in chapter five. The framework included evaluation of the PDP and for this study is established in study 1 baseline, and concludes with this longitudinal study to evaluate the short term (stage 1) and longer term (stage 2) effectiveness on teacher change and children's learning.

Research questions (secondary).

Stage 1

- What were the practices and perspectives of the teachers during the implementation phase of the programme?
- What types of support were requested and around which areas most support required?
- Was support required to be contextualised and sustained?
- Were there indications being exhibited that either supported the programme or otherwise?
- What were the children's opinions regarding the programme?
- What was the impact of the programme on the physical activity of the children, and the various lesson contexts, during physical education lessons?

The follow-up study, stage two had the following additional research questions:

- Did teachers' knowledge systems expand?
- Did contextualised professional development work?
- Did the teacher, school and facilitator partnership work and to what extent?
- Were there barriers to effective professional development?
- Did teachers become more effective in their teaching of O&AA?

- What were the participants' (teachers' and children's) reactions to the programme?
- What were the Principal's thoughts and perspectives on the programme?

Facilitation of the professional development programme. The PDP delivered during both stages was provided on an individualised contextualised basis on site for approximately one hour a week for each teacher. This was facilitated according to the school's physical education timetable (Appendix O). The researcher/facilitator was on site for the duration of the PDP to either, model lessons, team teach, offer a minor level of support or observe lessons and provide feedback in non-evaluative way. There were further opportunities for reflection during the focus groups, pre and post each stage of the PDP. Incidental conversations contributed to more informal support guided by social constructivist theory. Teachers were also provided with schemes, lesson plans and other necessary resources to help inform their learning. The lesson plans were linked to the curriculum and allowed for continuity and progression. The study was designed to cater for all circumstances, such as teachers changing class levels, facilities being unavailable due to other activities, teachers out sick etc. The support provided during the PDP changed as the programme progressed and this was anticipated when designing the programme. As the teachers continued to learn, their needs developed and changed. This change required the support to move from a more direct methodology of knowledge transfer, through modelling (stage 1), to a more indirect methodology, where-by the teachers began to plan and organise for themselves with the facilitator providing feedback (stage 2).

Data collection. Mixed methods were used to investigate the effectiveness of the PDP at stages 1 and 2. The primary methods (Table 6.1) were qualitative and comprised of focus group interviews with the teachers and children within two weeks post the unit of work in outdoor and adventure activities; interview with the Principal, lesson observations and evaluations and field notes. Additionally, quantitative methods utilised were 'System for Observing Fitness Instruction Time' (SOFIT[2]) and teachers completed a self-efficacy questionnaire, examining their confidence to teach Outdoor and Adventure Activities (O&AA).

[2] SOFIT is an objective tool for assessing the quality of physical education instruction. It is a comprehensive system that provides a measure of student activity levels, lesson context, and teacher behaviour during class time. SOFIT involves the direct observation of lessons by trained observers. The main focus of SOFIT is on the coding of student physical activity level and selected environmental factors (i.e. lesson context and teacher behaviour) that are associated with opportunities for students to be physically active and to become physically fit.

Table 6.1 Data collected during the PDP Stage 1 (S1) and Stage 2 (S2)

Method	Participant/s	Number
Semi structured interview	Principal	1 (S2)
Semi-structured focus-group interview	Teachers	28 teachers in 8 groups (S1) 27 teachers in 8 groups (S2)
	Children	40 children in 6 groups (S1&2)
SOFIT	Teachers/children	All classes (S1)
Self-efficacy questionnaire	Teachers	19 (S2)
Lesson Evaluations	Teachers	13 (S2)
Lesson Observations	Facilitator/researcher	42 (S2)
Field notes	Facilitator/researcher	n/a (S1&2)

Quantitative Data Collection

SOFIT (Stage 1 only). This study examined the activity levels of students, and the various lesson contexts during a specialist taught (as part of the modelling of lessons during the PDP) unit of work in outdoor and adventure activities. Data collected from the SOFIT observations of the Outdoor and Adventure lessons at Stage 1, although process measures of the implementation of the lessons, were used to document some potential antecedents to student learning, such as time dedicated to subject matter, student activity levels and teacher behaviours. As SOFIT is a validated systematic observation tool, its results can be quantified and used to support the qualitative data findings. Student activity levels, lesson context (management, knowledge, skills, fitness and games) and teacher instruction were quantified using a validated direct observation instrument, SOFIT (System for Observing Fitness Instruction Time) (McKenzie, 2005). All eight years, junior infants to sixth class were observed three times during stage 1 of the professional development programme facilitation, giving a total of 24 observed classes. The mean and standard deviation for the observations were calculated to provide a single measure for i) each class, ii) junior classes, iii) senior classes, iv) all classes. Independent sample t-tests were carried out to determine significant difference in activity levels between classes. The SOFIT research work was presented at the PEPAYS Forum (2007) and the AIESEP World Congress (2008) by Ní Bhriain, Coulter and colleagues, *'An examination of activity levels of primary school pupils during a PE specialist taught outdoor and adventure activities strand of the Irish PE Curriculum'*. The findings were also published in the PEPAYS Conference Proceedings (2008). The full article is available in Appendix C.

Self-efficacy questionnaire (Stage 2). Self-efficacy is part of Social Cognitive Theory (SCT) (Bandura, 1986). SCT suggests that social, cognitive and behavioural factors play an important part in an individual's choice to adhere to, or to avoid situations. Within SCT, self-efficacy can be described as an individual's belief in his or her ability to perform a particular behaviour in a variety of circumstances (Bandura, 1997). Self-efficacy beliefs are highly correlated with whether teachers will enact curricular reform (McCaughtry et al., 2006). Professional development programmes that successfully influence self-efficacy beliefs include a focus on new subject content, active learning for teachers, follow-up support and an emphasis on teachers' needs (Ingvarson et al., 2005). Teacher self-efficacy was observed as a mediator of teaching performance at stage 1 of the PDP. Hence, a researcher-developed self-efficacy questionnaire was administered to teachers prior to and post their teaching of the O&AA strand at stage 2 (Appendix U). Its purpose was to assess any change in teachers' self-efficacy beliefs as a result of the PDP. All eight domains of the PDP were included; on methodologies there was planning, equipment organisation and class management of an O&AA lesson and on content knowledge warm up games, stretching, challenges, orienteering and walking activities specific to O&AA were assessed. Teachers were asked to rate their level of perceived confidence in their ability to teach a specific domain of the PDP on a scale from 1-10, where 1 rated as 'not at all confident' to '10' indicating 'extremely confident'. The data were analysed descriptively using means and standard deviations. In order to test differences between time 1 and time 2, either a paired samples t-test, or a Wilcoxin signed ranks (for non-parametric data) was employed, using SPSS 17.0.

Qualitative Data Collection

Interviews. In designing the interview schedules three things were kept in mind and these were reflected in their structure; i) findings from previous phases; ii) evaluation of the current phase and iii) how the findings would relate to the overall study.

Semi-structured interview – Principal. The interview schedule for the Principal was divided into three sections; physical education, the PE professional development programme and professional development. This interview took place immediately following the PDP (Stage 2) in the Principal's office.

Focus group interviews - teachers.

Stage 1&2. Semi-structured interview schedules for teachers included questions on; i) teachers' opinions on the PDP design, content and facilitation and ii) on their learning and the children's learning. These sections were included so as to compare teachers' answers with the concepts of effective professional development. These sections allowed for comparison of teachers answers to the concepts of effective professional development through the PDP. The final two sections included general questions on the teachers' thoughts on physical education and the children's reaction to the PDP and the O&AA strand.

Focus group interviews - children.

Stage 1&2. The interview schedules for the children also included semi-structured questions covering the following sections; physical education, understanding of O&AA and enjoyment. These sections were included to elicit whether the aims of the PDP were met in relation to the children.

Lesson observations. The lesson observations were undertaken at stage 2 only, from the '*participant as observer'* (Denscombe, 2003, p. 203) perspective. While the preferred approach would have been to maintain distance from the lesson and the teaching, this was not always possible. As an observer in a physical education setting I frequently became part of the lesson as teachers approached me to receive affirmation having given the children a task to complete. The children having experienced lessons with me as the teacher came at times to seek my approval or to show me what they were doing. Some children approached me when they saw the teacher was busy and they required an adults help and others simply to say 'hello'. As I became involved in some lessons and because some teachers indicated that they felt under pressure having me observing and making notes, I completed many of the observation schedules immediately after the lesson. The observation schedule template and completed sample observation template can be seen in Appendix I (i) and I (ii). The observation schedule was informed by the observation schedule used by the researcher on teaching practice to observe pre-service teachers. The schedule included sections on 'strengths' and 'areas requiring development' and any other 'general observations' pertinent to the PDP.

Lesson evaluations. Teachers were asked to evaluate their own lessons if I was unable to be present. An evaluation template was designed for this purpose (Appendix J (i)). The lesson evaluation template was informed by the lesson evaluations used by pre-service teachers when on teaching practice and includes headings such as 'strengths' and 'areas requiring development' of the lesson as well as outlining content included in the lesson, levels of physical activity and a space for any other general comments. The lesson evaluation templates were accompanied with instructions for completion for each teacher and a sample completed evaluation form can be seen in Appendix J (ii).

Field notes. Throughout the study field notes were kept in the form of a digitally recorded journal. Each day observations, thoughts and reflections were recorded to provide a record of the process and allow the researcher time to reflect and return to these notes throughout the facilitation of the programme to inform subsequent facilitation. While many of these thoughts and opinions are of the researcher's own interpretation they proved to be a useful secondary source of data and were invaluable in supporting and explaining the primary data collected. The data were analysed as outlined in chapter three and the findings reported here under the headings and themes identified.

Participants

Twenty eight teachers (82% female) took part in the PDP at stage 1. The school staff had increased to 29 teachers at stage 2. Table 6.2 outlines the number of teachers who participated in both stages. Twenty teachers remained at the same class level[3], thirteen teachers remained at the same class and three teachers moved to a new class level. There were 6 new teachers to the school. Five teachers were newly qualified teachers (NQTs) undertaking their Diploma and the sixth teacher was an experienced teacher who had never taught O&AA. Two of the NQTs had infant classes time-tabled for Gaelic Football during the PDP. Due to the time constraints imposed by the shorter teaching day for these children and the teachers completing their Diplomas these two teachers opted out of the study. The remaining three NQTs took part in the PDP. Two of the NQTs had been in the school on teaching practice during the initial PDP though they had not directly engaged in the research. The final NQT agreed to become a

[3] The Primary School Curriculum (Government of Ireland, 1999) divides the eight years of primary school into 4 class levels as follows; junior and senior infants, first and second class, third and fourth class and fifth and sixth class.

participant in the study. Therefore 27 teachers (78% female) participated in the study at Stage 2. The teachers agreed at stage 2, to teach a programme of O&AA lessons (minimum of four lessons) during the month of October 2007, this would bring them to the mid-term break.

Table 6.2 Teachers participating at stage 1 and 2 of the study

Class	**2006**		**2007**	
	Male	**Female**	**Male**	**Female**
Junior Infants		4		2
Senior Infants		4		5
First		3		3
Second		4		3
Third	2	1	1	3
Fourth		3	2	1
Fifth	1	2	1	2
Sixth	2	2	2	2
Total	28		27	

The children selected for the focus group interviews were the same children (Table 6.3) as those involved in the understanding the environment study. At stage 2 as each group had moved up a class level, six new children were selected from first class according to the criterion outlined in chapter three. The stage 1 sixth class children were no longer in the school having moved onto second level education.

Table 6.3 Number of children participating in the focus group interviews

Class	**2006**		**2007**	
	Male	**Female**	**Male**	**Female**
First	3	3	3	3
Second	4	4	3	3
Third	3	3	4	4
Fourth	3	3	3	3
Fifth	3	3	3	3
Sixth	4	4	4	4
Total	20	20	20	20

Data analysis - Qualitative

Transcripts of interviews, lesson observations and evaluations and field notes were entered into NVivo (QSR NVivo Version 8). The coding strategy as explained in detail in chapter three (methodology) was followed. In summary, this coding strategy took the format of broad to narrow analysis and then expanding out again to gain an overall view of the emerging themes. At each stage of coding any ideas, thoughts, literature relationships etc. were logged as memos/annotations and assigned/linked to the relevant data. Each code/category/theme etc. was carefully defined and recorded. The resultant propositional statements generated, relating to the themes established in the analysis of data are presented here and then synthesised into cohesive and supported outcome findings.

Coding system. Due to the number of methods of data collection used in this study as well as the various class groupings a coding system was created to support references to the data. Focus group interviews with teachers are abbreviated to FGT and children FGC. When referencing a quote from a teacher, the teacher's pseudonym and class will be added. Children will be referred to as boys or girls with their class identified. Numbers 1 or 2 will appear at the start of the code to distinguish between stages (Table 6.4) Field notes are represented by the letters FN followed by the date on which the note was made. Similar coding was used for the lesson observations and evaluations, using the initials 'LO' or 'LE' again followed by the teachers name and class. Any reference by the Principal will be referred to as 'IP' in the text.

Table 6.4 Coding system for quotations

Example	Coding Reference
Quote from teacher, called Mary, from 6th class at **stage 1** of the PDP	**1** FGT Mary 6
Quote for a girl from 3rd class at **stage 2** of the PDP	**2** FGC Girl 3
Lesson observation of teacher, called John, from 5th class	LO John 5
Lesson evaluation by teacher, called Kate, from junior infants	LE Kate JI
Field note made on April 6th 2007	FN 06.04.07

Propositional statements. Figure 6.1 outlines the following propositional statements that were developed from the data. Each propositional statement was tested against the data and each is underpinned by a number of themes. The propositional

statements and their sub-themes were developed both deductively informed by the literature and inductively from the coding process.

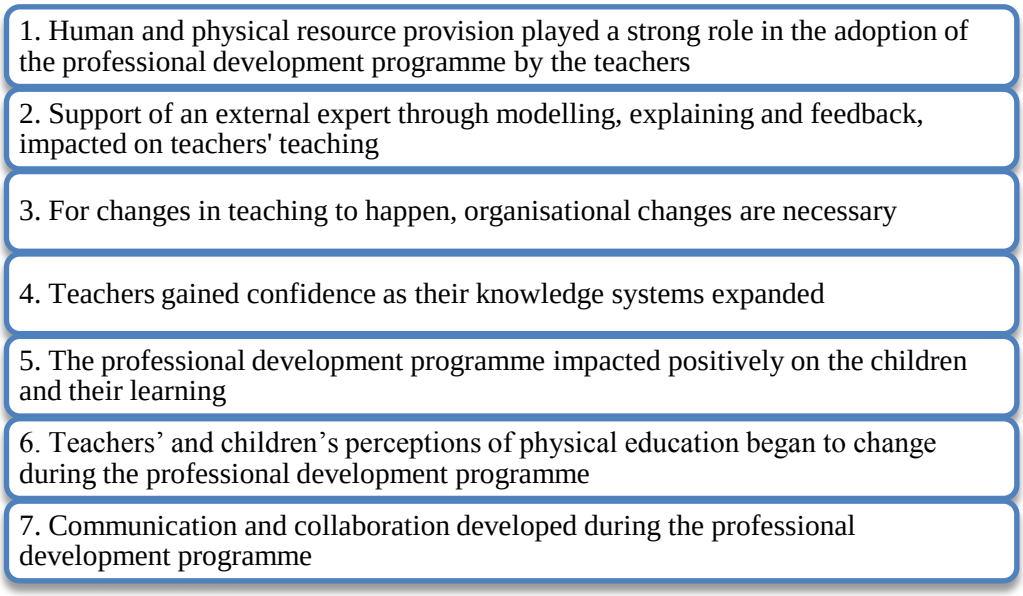

Figure 6.1 Propositional statements following analysis of the data

Findings

Propositional Statement 1: Human and physical resource provision played a strong role in the adoption of the professional development programme by the teachers

Resources and materials. All teachers reported that the resources provided (outlined in chapter 5) were invaluable in supporting and enabling their teaching; *'I thought they [schemes and lessons plans] were brilliant … and resources excellent, the maps and especially once the controls were outside everything was set up for us'* (1 FGT Eve 3). Provision of physical resources assisted teachers in facilitating lessons especially in the case of O&AA where many resources were school specific (e.g. maps) and required time and energy to create. Teachers were delighted to have the resources and some teachers even used them in other aspects of their teaching; *'We'll just use them [the maps] to walk them [the children] around the area before-hand in the geography session'* (1 FGT Amy 1). Once resources were prepared, they were used by teachers and they commented on how they could be used in other curricular areas.

The resources, equipment and materials necessary for the O&AA lessons were stored in the relevant equipment stores and all teachers were advised of this prior to and

during the PDP. However, as the facilitator was supporting all teachers, and their lessons came one after the other, the equipment remained outside. During stage 1 the teachers themselves did not have to collect or return the resources and equipment. Although some teachers indicated that it was their responsibility to ensure that they knew where the equipment was kept in reality this did not appear to happen. This was a limitation of the originally planned PDP and teachers pointed to this as a barrier to future teaching of O&AA;

Cathal (1 FGT 3) *I'm not sure actually where to go…*
Eve (1 FGT 3)- *...like where are the maps…they were always down there in the gym before the class.*

> *I didn't take the time myself to go and look to see where the resources are until it came to my Dip*[4] *where I had to root through and pick out, so if you had the time to see – oh that is what that's for. I didn't know what half the resources were for until I had to do it myself so I think there was a certain element where I didn't go and kind of look and figure out what was what.* (1 FGT Coleen SI)

In summary, physical resources generated by the researcher for the PDP were seen as good by the teachers, however, the fact that the equipment was available to teachers for each lesson, was a limitation of the PDP. Teachers indicated that they had, to some extent, become dependent on the facilitator. An objective for stage 2 was that this lack of knowledge should be addressed and that teachers would have to be made aware of the collection and organisation of the equipment and resources required for each lesson as part of the PDP.

At follow-up, stage 2, the teachers were teaching the O&AA unit of work for themselves and it was evident that the teachers (and the Principal) still valued the opportunity to access the externally generated resources, to support their teaching;

> *The resources were brilliant. Like, I think a lot of teachers, you know, whenever you do something, oh, is there a website for that … when you realise you don't have to actually spend time making resources, but the fact that you have them readymade… but they're fantastic and to have it all sorted out down there [in the store] it's brilliant. We just grab a box and there's a Noddy Guide in there, you know or the template is there.* (2 FGT Kate SI)

[4] Coleen was a newly qualified teacher completing her Diploma, where she was observed and assessed by a member of the Inspectorate from the Department of Education and Skills.

> *So the teachers have now a set of lessons as a resource there to guide them through the, the curriculum in the school … I suppose we have resources now in the school that are clearly kind of identified and have been linked to the lessons and so forth.* (IP)

The teachers felt that generating the resources for teaching O&AA themselves would be time-consuming and a potential barrier;

> *That would have been far too much work, preparation and stuff, so I wouldn't have done it, much easier to go out and play football…I think the stuff is all there to do it…all the equipment and, so it's much easier to do it now … that was the biggest obstacle, I'd say.* (2 FGT Seán 6)

Seán summed up the value of having resources provided for O&AA in order to bring about change, however, getting teachers to this point of change is difficult; *'…okay, they're[the resources] time consuming, but they are not impossible to make'* (2 FGT Coleen JI). One of the newly qualified teacher's (NQTs) had prepared all her own resources as she preferred to have her own resources, in her classroom and to have easy access to them. She had used previous related knowledge from her undergraduate degree to inform her preparation and looked to the PDP to provide feedback and affirmation on her teaching.

At stage 2, many of the teachers had new classrooms, the summer holidays had occurred, and resources had been misplaced;

> *I was a little bit perturbed to find that some of the teachers, who had been given equipment and resources and everything last year, had misplaced them … I would say at least six, seven hours this week was given to reproducing documents, photocopying documents and resources and making sure the teachers got them.* (FN 07.10.07)

To an extent the teachers' reliance on the externally generated resources had not lessened by the end of stage 2. While these resources were necessary to establish basic content knowledge, and provide a starting point for the PDP, the way the resources were provided did not facilitate teachers having ownership of them. However, as the teachers began to teach they became more responsible for the resources. Teachers were anxious before they started to teach the O&AA unit of work that the equipment and resources would be available to them and that other teachers would ensure their safe return. This anxiety lessened as the PDP progressed through stage 2, as teachers realised the importance of ensuring their colleagues had access to the resources for their own teaching.

Human resource. Infant teachers saw the PDP facilitator not just as an expert supporting them in their teaching, but also as another adult, an enabler to quality physical education for the children. They reported that having the facilitator present ensured that children got more individual attention; *'there is always some little thing with small infants … so it is handy having someone, so if you have to leave the lesson, to carry it on'* (1 FGT Mary JI). Most teachers felt that with the amount of organisation required for putting out controls for orienteering and supervision of the class over a large area, an extra pair of hands was required and without this (a barrier) they would find O&AA difficult to teach; *'To be honest I ...I think I would need another person with me... because they will be running and chasing and all the rest to get there first. So you definitely need two [people] for parts of it'* (1 FGT Amy 1). *'There were kind of logistical things as well… like putting out the clues … as a teacher you have to have someone to cover your class…'* (1 FGT Darragh 6). *'Now my biggest problem with that [teaching O&AA again] would be, to be honest with you, would be organising the equipment out and what do I do with my class...'* (1 FGT Wilma SI).

One teacher summed up the thoughts of many of the teachers when it came to organising resources and equipment for physical education and O&AA;

> *I think sometimes PE generally as a subject is difficult and organisation. I think once you are up and going and you're … it's just the actual equipment movement. Movement of equipment, no matter what it is, it is difficult. It is just at the start, you are picking things up or you are going through things and you are saying – do I have everything I need? – and you have a list in front of you, and that is the hardest part for PE I think.* (2 FGT Cathal 4)

This was supported by another teacher; *'…it's mind boggling how much you actually do need isn't it?'* (2 FGT Eileen 3)

Children too, were conscious of the fact that extra help would be beneficial in organising equipment;

Boy - *If you have a lot of people it is pretty easy but if it was only you, you would be running around all over the place.*
Girl - *Yeah, you would need four or five people to help but when you are playing games two or three people usually go to the PE place and they get a basket.* (1 FGC 4)

Some teachers even felt that an extra pair of hands in preparing resources would be beneficial; *'...you would really need an assistant for something like this [preparing*

resources]. It is very labour intensive' (1 FGT Sophie 6). As an extra pair of hands would not always be available to teachers it was imperative that organisational strategies were developed, as part of the support offered in the PDP to enable teachers manage on their own;

> *I have now decided to have the children do much of the organising … to show teachers that … they can just get on with it and do it, you don't need another set of hands, you don't need two or three people putting out things. It can be done with one teacher on their own with the equipment being carried out in the box, the children putting out all the equipment and preparing the lesson for you…already this week I was already using fifth and sixth class children to put out equipment for their own classes and also for the younger classes. So it's just to use the children and use the resources in the school as best as can be done.* (FN 28.02.07)

This 'use' of children could be, involving the children in the organisation of equipment for their own lesson or having senior children organise equipment for the younger classes where possible.

During stage 2, teachers themselves tried to find ways around the equipment organising difficulties that they encountered. Two of the infant teachers asked two of the fifth class children to put out scavenger hunt materials for their class. They only required the older children for 10 minutes but yet were conscious that this might not be appropriate all the time;

> *It's just to clarify that we're not annoying fifth and sixth class teachers because they have choir and they have this and they have that. And if they're out… they've loads. So if we're taking them for 15 minutes we're another 15 minutes.* (2 FGT Coleen JI)

Other teachers came in early to prepare resources and equipment, to have it ready for their class time. They still could not put the controls out before school, as on one occasion a teacher put orienteering controls out only to have some infant children collect and return it to the teacher, trying to be helpful, when they saw it in the yard at break-time. Senior teachers had similar difficulties, if they wanted controls or activities put out prior to lessons they would require help;

> *That was the one trouble we had…who would put the buckets out and if you put them out and left them over break it would be the kids during break might tamper with it…..windy day they would have blown away so…that's the only thing now that would be a little off-putting if you were setting out…* (2 FGT Alannah 5)

> *Having it ready for you when you go out. I really think that's a huge thing…because I think once the resources are there it's only a matter of going through the list in your head and kind of knowing what it is yourself, and kind of going out and teaching it.* (2 FGT Maeve 2)

Sophie, a teacher in sixth class said that she put controls up for her class and it had put her off teaching the activity again;

> *It took her about half-an-hour with a map and the controls herself, trying to put them up and find [the points on the map] around the place, and go around the school, tie them up securely, make sure they were still there for her class then later on that day. So she said without somebody there to put them [controls] up they probably wouldn't do the activity.* (FN 19.10.07)

Claire another sixth class teacher encountered the same barrier;

> *I did one [orienteering lesson] last year myself near the end of the year and I was out in the rain for 45 minutes trying to put them [controls] up in the morning and that's a long time to be putting them up and then looking at the map to make sure it was right, it was quite difficult.* (2 FGT Claire 6)

As the senior classes required 'an extra pair of hands' primarily to place controls for orienteering activities we discussed a solution to this during the interviews. One idea was to place permanent controls around the school but as the school site is small and was about to undergo some construction work it was thought best to leave putting up permanent controls and creating new maps until after any building works. Another option was to choose tiny control cards that would be difficult for children to notice and remove, and which would also challenge the children when orienteering to a greater extent. Junior teachers decided as a solution to their organisational issues, to approach senior class teachers to ascertain if they could 'borrow' some older children to help with the organisation of their equipment for lessons, on a regular basis without encroaching on the children's time for too long. This was agreed to by their teachers on a trial basis to see how it might work.

Propositional Statement 2: Support of an external expert through modeling, explaining and feedback, impacted on teachers' teaching

The goal of this PDP was to enable teachers to become confident and competent in teaching outdoor and adventure activities. To this end they were provided with the appropriate resources accompanied by experiential learning opportunities. Social constructivist learning theory suggests that learning is more effective when it is

'authentic' (Vygotsky, 1978; Lieberman, 1995; Murphy, 1997). This experience clarified what each activity meant in practice and in the context of primary professional development. Following stage 1 and prior to stage 2 teachers were asked to comment on the content and resources provided for their classes and teachers were encouraged to adapt and change activities to suit their classes and teaching intentions. In brief, teachers found the activities and lesson content suitable, but questioned two aspects of the content, not for its learning potential but its inactivity within a physical education lesson. Teachers and children did not enjoy doing compass work or the initial map walk during physical education as within the school grounds it was limited and inactive. Teachers felt that this could be covered within geography lessons, and applied in physical education lessons. Teachers were beginning to integrate subjects and adapt activities to suit purpose and children, showing understanding and ability to adapt.

Teachers were also supported in their teaching through a number of methods as outlined in the PDP design in chapter five and summarised in Tables 6.5 and 6.6. The following findings report how teachers engaged and benefitted from the support provided based on their requests and needs.

Table 6.5 Uptake of available support during the PDP – Stage 1

Types of support	Modelling of complete lesson (seeing)	Modelling of part of a lesson/Team teaching (seeing)	Explanation of lesson prior to lesson (explaining)
	Number of Lessons		
Week 1	4	-	-
Week 2	7	2	-
Week 3	11	4	2
Week 4	12	3	1
Week 5	16	6	4
Week 6	8	5	2
Week 7	4	8	7
Week 8	7	7	3
Total	69	35	19[5]
	Intense	→	Less Intense

[5] Explanations ranged from 5 minutes to clarify a technical aspect of a lesson to 30 minutes where the complete lesson was explained in detail.

Table 6.6 Uptake of available support during PDP – Stage 2

Types of support	Modelling of complete lesson (seeing)	Modelling of part of a lesson/Team teaching (seeing)	Explanation of lesson prior to lesson (explaining)	Observation of lesson (observing)
	Number of lessons			
Week 1	2	5	3	13
Week 2	-	2	3	16
Week 3	1	6	3	10
Week 4	1	2	_	6
Total	4	15	9	45
	Intense	→	Less Intense	

It is important to note that no teacher who had a complete lesson modelled for them during the initial PDP required modelling of a complete lesson at stage 2 of the PDP.

Modelling. Modelling was provided for whole lessons, part lessons and individual activities within a lesson. Teachers commented that having the opportunity to actually see another teacher teaching, modelling the content, explaining what they were doing (cognitive apprenticeship) and demonstrating strategies for them was extremely helpful; *'Oh yeah, well you know I wouldn't be the best teacher of PE as you know so it showed me – I feel I could do it by watching you'* (1 FGT Lisa SI). *'...you know exactly what's being done and how to go about doing it...'* (1 FGT Molly JI).

> *I think you need to see it in action. Because when it is written down on paper…it is very hard to visualize it unless you have seen it done. And once you have seen it done you will remember it again you know.* (1 FGT Amanda 1)

The production of a DVD or on-line vignettes of lesson would be an excellent way of having lessons modelled according to one teacher who was anxious as to how much she would remember for teaching during the following year;

> *'might be no harm to video it, I'm thinking in terms of you know, you have your notes but how do you do that again and if it was on a video you could say oh that's the photo star'* (1 FGT Kate JI).

At stage 2 of the PDP, modelling of lessons was carried out for Jack, who was new to the school and had no experience of O&AA previously, and for a teacher (Moira) who was now teaching two levels higher than at stage 1 and was not confident

with the new, more advanced content. Jack had this to say about his experience of lesson modelling;

> *Can I say to compare that with, or to traditional in-service in PE, I found much more valuable to have you there because it...you get a quick thing from say turning and saying to somebody and it is the first morning lesson and you know like, with everything else, you have forgotten. Whereas being on site in the real situation, walking around, they are just looking at you doing it or doing it with you. Whereas I found it certainly much more important, much better learning experience. There is no doubt about it, I'd still from time to time like somebody to extend the lesson for the bright kids or with dance. It might be no harm if we could see somebody, you know, modelling it even once but in a real situation, not with adults. You need to see, to stress the lesson, you need to see kids doing it.* (2 FGT Jack 4)

This opinion was supported by the Principal; *'That [modelling] was crucially important … because we don't, we're often told what to do, without actually being shown how to do it'* (IP). Teachers recognised that the 'how to' knowledge (pedagogical content knowledge) was just as important as the 'what' knowledge (content knowledge) and that for teachers to embrace the content and teach they needed both types of knowledge, which were provided by the PDP. The complexity of teachers moving between classes each year and new staff in schools each year highlights the importance of sustained support and flexibility within that support. The professional development programme in its design must be flexible to allow for complexities. Teachers have to see things in their world, their school with their children, to embrace the professional development and to understand the teaching and learning environment as it pertains to them. The lessons were detailed in terms of content and pedagogical content knowledge was provided through the modelling of these lessons;

> *My main concern would've been not being able, not getting the idea of the concept, the concept of the lesson myself and not being able to do the lesson then. So, I had a look at these notes and thinking about it in my head. I don't know what the game is. If you don't know that, you can't start. So, that's, that would've been my main concern…knowing what a snake walk is, you know…I know now what it is.* (2 FGT Simon 3)

The provision of resources without the modelling of their content for many teachers would not have encouraged them to teach the lessons. All teachers continued to report at stage 2, that the lesson/partial lesson modelling was invaluable. The following comment from one of the teachers encapsulate the teachers' thoughts; *'I*

thought that the way you modelled the lessons at the start gave me confidence…so I thought the modelling was brilliant' (2 FGT Alannah 5).

Similar to comments made at stage 1, teachers still supported the idea of having a DVD available with some of the activities shown so that they might have an idea where to start and that what they were doing was correct;

> *I think that a video explaining or teaching or actually videoing, let's say in orienteering and outdoor activity for each class level should be done. And that should actually accompany each class level then in school so that when people go into first class they have the video for first class with an example of everything, all the strands……But if something could be started, the support would be therefore teachers and there would be no reason why they wouldn't be able to … visualise, and teach in a confident way.* (2 FGT Natalie 1)

Explaining. Teachers in the infant classes, third classes and fifth classes were eager to try and teach themselves, having seen a lesson or two modelled at stage 1. Even at this early stage in the PDP some teachers required support of a less intense nature. These teachers asked for support in the form of briefings, where I spent a short time with them going through the lesson they were to teach the following day;

> *Two third class teachers asked me to spend some time with them today on a lesson that they are going to teach tomorrow. It's the first group of teachers I spent time with, actually spent time with and its only their second lesson… I spent a good half hour with them going through the lesson from start to finish and making sure they were happy with it.* (FN 26.02.07)

The infant teachers appeared to become confident with the content very quickly and explanations were around the organisation of equipment and the management of an activity, in the context of having 30 children active within the lesson. With the third and fifth class teachers some explanation of content was needed alongside organisation and management of activities.

Active learning. As well as the support that was provided to teachers through modelling, team teaching and briefing, the teachers in the senior classes (fifth and sixth) got involved in the activities in order to learn the activities and experience the activities from a child's perspective;

> *The teacher [fifth class teacher] this time got quite involved with the activity … she took the map, she went finding points herself, tried to orientate the map, tried to look for controls so she knew what the children were doing and she*

played a very active role and interested in what the class were doing. (FN 08.03.07)

This type of active learning was not explicit in the PDP design but became an important part of the teachers' learning. This practice echoed the practice of traditional in-service in some ways whereby the teacher became the child, although in this case the teachers worked alongside children in their own context rather than working with peers out of context. The teachers were not sure themselves how to do the activities, therefore, in order to be able to teach the activities they needed to try them out for themselves and ensure their own understanding. Three of the teachers kept notes through all the lessons I modelled for them and when I asked about this, thinking that maybe the lessons weren't detailed enough, two teachers said they re-wrote things in their own words to clarify lesson content further and another teacher pointed out that; *'There were little things you said … that weren't in the lesson notes that you would have done…I got ideas like that extra things that you would have done that weren't in the notes'* (1 FGT Wilma SI). Future PDP designs should include opportunities for teachers to engage in the activities/lesson content and opportunities should also be provided for teachers to make notes and record any aspect of the lesson, which they felt was important to enable their teaching.

Feedback and reflection. Initially, the teachers were very receptive to the PDP and were enthusiastic about getting started and observing lessons being modelled. As the weeks progressed teachers became a little complacent and assumed that the facilitator would continue to model or teach their classes. However, by week four teachers were becoming more enthusiastic and more willing to try things for themselves, once the facilitator was there for support if necessary. As this strand was new to all, except one of the teachers, once they began to become familiar with the content and began to teach aspects of a lesson, feedback on teaching was the main support being provided. Support of 'an expert' was identified by teachers as an enabler in physical education and more especially in O&AA, when during a teacher led lesson, they could call on me, as facilitator or 'expert' to check that they were teaching the lessons properly; *'I felt like we were learning the lesson… am I doing this right or is this wrong'* (1 FGT Eve 3).

During team teaching at stage 1and 2, teachers sought feedback and affirmation especially when they had given complex instructions to the children or had explained a

technical activity; *'…because I was there, every so often he would look over and say – "is that ok, is that alright?" – and you just check to see if he is doing the right thing'* (FN 27.02.07).

> *She is just a little unsure of herself and every two minutes was asking me was she doing the right thing whilst the children were busy. It wasn't taking from the lesson in any way. As soon as she had given them a task she would step over and say – is that ok- but she was grand. I think it's just that it is something new and [she] hadn't done it before. I think she just wanted affirmation that what she was doing, she was doing right.* (FN 27.02.07)

When part-modelling, teachers had differing views of me being there. Some were delighted to have an 'expert' alongside them, whom they could turn to for advice and affirmation, even if initially it may have been tinged with a little concern. This concern was felt by the teachers whom I had lectured in college and may even have assessed on their teaching practice; *'I suppose initially we felt a little bit watched. We had that in college, oh, is she looking, did we do that a little bit, but we knew you weren't there to watch us'* (1 FGT Kate JI). At stage 2 of the PDP, three of the teachers continued to feel that they were being supervised, rather than being supported in their teaching, and were reluctant to teach while being observed; *'I learned that I hated when you were watching me Maura, on the first lesson … never thought I'd hate it as much as I did. I thought I'd be absolutely fine …'* (2 FGT Moira 3). Even the language teachers used was related to their initial teacher education experience and being supervised on teaching practice; *'And being supervised is a bit of an issue as well because it's a long time since I was supervised, you know'* (2 FGT Amy 1).

> *…they've said it, "you are the expert", therefore you know we are a little bit hesitant in performing in front of you. Some of them see me still as a supervisor of teaching practice, and a PE person from the college where they did their training…* (FN 07.10.07)

I tried to allay any fears by not making notes during stage 2 observations, while the teachers were teaching, as this seemed to make them anxious;

> *Teachers much happier with me observing and doing notes afterwards, rather than writing as they're teaching. It seems to completely put them off. They do know I'm observing them. They do know I am watching them. But it's just I am not writing as I watch, and I'm having little discussions with them afterwards.* (FN 19.10.07)

I also had to keep reinforcing with teachers that I was still there in a supportive role and that the notes I was making while they were teaching were for me, so that I could see where teachers still required support and in which areas. Others saw my observations as an enabler or opportunity for me to provide support and feedback; *'I was worried about – that I would do it wrong…but it did feel supportive like I knew you would be there to help it along'* (1 FGT Cathal 3).

> *I was conscious of you being around assessing but I don't experience assessment as bad, as I am assessing all the time myself. So I think assessment to me is the medium to me in which I live and teach. So if it is not hostile, so if I have someone to watch over me like a guardian angel of assessment, that's what you were, so you know again maybe next time I will go a little bit further. That is the way it will be. It seems to me that a lot of this is unimportant I think, feel it it's unimportant…what is important is to start, to review what you have done, with the children, see how you can improve it, with the children, discussion, try again and just keep going.* (1 FGT Eamonn 3)

Eamonn's understanding of assessment was to reflect or review on what he taught, and try to improve it for the next lesson. He did not see reflection as a barrier but rather something to be embraced and something which should be done as a natural part of teaching and learning.

> *But the point is you were actually very helpful to me. You didn't keep coming up to me upfront and saying - do this. You actually sat down with me and [explained] this is what I am trying to do. You actually made me see it clearly and see pitfalls and see things were actually available in what I call the magic room [PE Store] which I didn't even know were there. So, it actually, I was trying to see into the landscape and you lit it up at points so it was approachable. Now in that sense I would like someone like you around all the time.* (1 FGT Eamonn 3)

A sentiment reported by Eamonn and echoed by a number of teachers was how great it would be to have someone around all the time to offer support and to facilitate discussion/ reflection. It was difficult at the beginning of the study to schedule focus group interviews and the interviews may have been an imposition on teachers' time. Ultimately, however, the focus-group interviews provided teachers with opportunities to have in-depth discussion about content, reflect on the lessons they had seen or taught and to critically challenge the O&AA content.

At stage 2, the teachers who taught for the first time at this stage of the PDP, similar to those who taught at stage 1 sought reassurance and feedback that they were teaching the content correctly. *'Teachers not afraid to ask 'is that ok?' in front of*

children' (LO Simon 4, Eve 3). *'Always asked [if unsure about anything] and liked having support of having someone there to ask'* (LO Amanda 1). Teachers looked for feedback regularly and not just on how they taught but also how they might teach, even when they had solutions to problems they might encounter they required affirmation that they had come to the correct solution;

> *The teachers are having problems, coming up with solutions, and just running the solutions past me to check if they're okay. And I think this is where you need the teacher on-site to be able, or the supporter, or the PE advisor, that little questions like this can be answered. If I had, hadn't been able to answer him, would he have gone in with less confidence? Um, if I hadn't been there, would he have abandoned the lesson? Or would he have gone on and tried it anyway and seen what would've happened for his own sake?* (FN 07.10.07)

Although the teachers may have seen lessons modelled and may have been able to adapt content to suit their or their children's needs, they continued to experience a doubt in their planning and teaching and this may have been due to the fact that they were still coming to terms with this new content and pedagogical content knowledge.

Many of the teachers were caught in a 'professional' dilemma. During the first week of the PDP I felt that some of the younger teachers who would have done a module in O&AA in college were hesitant in asking for support because they felt I would have expected them to be able to teach it. One of these teachers tried to teach the lessons and following the lesson came and asked for support because she didn't understand the lesson fully. The late career teachers were similar, and felt self-conscious with a younger person showing them what to do, when they have been teaching for over 20 years. Other teachers' professionalism showed when they kept children for O&AA for over their allocated hour to ensure that they had taught all aspects of a lesson while the facilitator was present, to ensure they made the most of all the support on offer.

When asked if teachers would have taught the O&AA strand without some encouragement they responded as follows; *'I actually think it is because you spend so much time talking to all the teachers and trying to help teachers out that the teachers actually want to do it'* (2 FGT Miriam 5). Although I observed that teachers were able to teach the O&AA strand, considering this was their first or in some cases second attempt at teaching the lesson content, many of the teachers did say that if I wasn't there to provide that push or requirement to teach the lessons they wouldn't have done so.

Some of the teachers may have taught the first lesson but if that hadn't gone well then they wouldn't have gone any further.

Facilitators of professional development programmes should be aware of the relationship that may exist between them and teachers. In this case, there existed a dual relationship between the facilitator and the teachers i) five teachers had the facilitator as a lecturer in college and found it difficult to separate the role of lecturer and teaching practice supervisor (though the facilitator had not supervised any of the teachers on teaching practice during their ITE) from facilitator and ii) the remaining teachers were aware of the role of the facilitator as a lecturer and would have described the facilitator as an expert in the area of physical education. While many of the teachers saw this 'expert' role as a benefit to them, it became a barrier when observing lessons. The facilitator felt that at times the teachers were under pressure and compared their teaching to the modeled lessons. Facilitator encouragement and reassurance became important elements of effective PDP facilitation.

Propositional Statement 3: For changes in teaching to happen, organisational changes are necessary

Physical access to equipment and resources. A barrier referred to in 'understanding the case' was the lack of care given to the unorganised equipment stores. If organisational change, through the leadership of the Principal, was implemented this barrier to effective teaching could be surmounted. The organisation of the equipment store was an organisational change which contributed to the success of the PDP.

Kate (1 FGT JI) - *It is great to have it organised, the equipment room is fabulous now you can literally go and collect your box, you are not trying to take bean bags out of balls so it's great to have that.*
Mary (1 FGT JI) - *It was fantastic, the very neatness of the whole thing you had everything so nice … the problem is to keep it like that.*

Mary was concerned that the organised store might not remain as such and that accessing resources may once again become a barrier to teaching physical education with the infant classes. I noted that the teachers,

> *spoke about having their PE one after the other, having all the equipment there and having access to it to make their life easier. Again, it is boiling down to, as one of the girls said, if it's not there and you can't put your hand on it in ten seconds you are not going to make the effort. You are not going to look for it;*

you just don't have the time to waste with your class standing there. (FN 30.04.07)

In the school resources were shared and were available to all teachers. It became clear by end of this study that care of equipment and resources was still not a priority for teachers or children;

> *Yesterday the teacher who couldn't find the equipment didn't have the lesson ready and even though the equipment was there in the gym as the other teacher taught the exact same lesson, no attempt was made by the second teacher or the children to return everything to the equipment store. I have seen that a lot in the school. They [the teachers] would bring equipment a lot to the GP room and just leave it there. Or when they finish in the GP hall they bring it to the equipment store and just drop it there. It doesn't get put back where it should be put back to. This seems to be a big problem ... because it is outside of their room in another room, with equipment and resources in another room, that it is just so disjointed. I don't think they see the link and how it all works together and how it is important as it is a sharing of resources … they have to be conscious of everybody else* (FN 28.02.07).

Everyone has access to the main equipment store, including children from classes returning and collecting equipment for teachers for lessons and adults other than teachers, who assist with school sporting activities. Similar to the resource provision finding, there was no real sense of ownership over the store. The Principal explained how managing shared resources in the school was a whole school problem and not just for physical education;

> *They [teachers] send the equipment back to the store with a couple of kids and really it's difficult to, it's unfair to expect the kids to leave it in ship shape all the time…this is an issue we have with art materials as well…where a teacher is doing art in the classroom. They send Johnnie down to get some paper. Johnnie pulls the paper from the bottom, and the paper falls out on the floor… and he's in a panic. He doesn't want to get caught, and he's gone. You know, it's the same with PE.* (IP)

The junior equipment store did not have the same problem. Resources were available to the teachers and this is probably due to the fact that the teachers only have access to this store and keep it in order from day to day. Prior to stage 2, the stores were tidied and equipment arranged, by the researcher and four children who had responsibility for keeping the equipment store tidy;

> *The general PE store was a disaster. Everything was everywhere. It took two hours to give it a good tidy out, and another hour to go through all the resources and to ensure that they were there after tidying it.* (FN 07.10.07)

Having access to resources and equipment quickly and easily, when these are shared amongst a staff, can be a vital enabler to the facilitation of a physical education PDP and ultimately to the teaching of physical education in a primary school.

The teaching environment. The school's outdoor facilities were adequate for most physical education lessons. The indoor facility was extremely small, sometimes with excess furniture, such as a piano, keyboard, benches, tables and chairs stored around the sides of the hall. The teachers had seen the facilities as a minor barrier, but the design of the PDP ensured that the best use was made of the facilities to allow the teachers and children experience quality programme of O&AA. The second class teachers admitted prior to the PDP (Understanding the Case) the school facilities were inadequate however, following the PDP these teachers had re-evaluated their physical environment and even changed their minds regarding the facilities available; *'We were shown how to use what we had in the school'* (1 FGT Nicole 2). *'For outdoor and adventure sure it [the school] is pretty good really'* (1 FGT Eileen 2). Teachers did recognise that most activities were better positioned outside where children would be more active and have more room for activities. Even the infant teachers who preferred to have their lesson indoors expressed that the hall was not suitable for O&AA; *'the hall isn't big enough'* (1 FGT Kate JI)*…'the hall isn't suitable'* (1 FGT Mary JI)*.*

Timetabling. Due to the nature of the school it was not possible to leave equipment or controls for orienteering out for the duration of the school day, or longer. Yards and free play space were used by the children during break and lunch times, therefore equipment (even orienteering controls) could not be organised in advance. At stage 1, it was only the first classes that were scheduled together, and these teachers commented on how helpful this was;

Amy - *well I think it [timetable] works quite well for us because you are not under pressure to put it [equipment] back because we know well one of the others is going to come after you at worst…*
Moira - *...the only thing is we worked together...*
Amy - *…yes ours worked fine…*
Moira - *…for so long now that...*
Amanda - *yes...*
Moira - *...she gets it automatically after me and then I get it or whatever. So...*
Amy - *...it works fine for us...and like that should really work…should be possible for everyone...* (1 FGT 1).

Timetabling did not allow for other year groups to be scheduled together to ease the problem of collecting, laying out and replacing equipment. This was an outcome of

the findings at stage 1, to be addressed as an organisational change to be implemented at stage 2. This would help enable not just the teaching of O&AA, but all physical education lessons. This organisational change was to enable teachers in the organisation of equipment and resources for the O&AA lessons. Teachers within the class groups had agreed to rotate so that each of them took turns in collecting, setting up and returning equipment;

> *The teacher bringing it [equipment] out is obviously doing a very, very good job. It's the teacher putting it back in, needs to make sure it goes back in the right place, and that properly if any other teacher needs to use it.* (FN 10.10.07)

It took a month from the start of term to finalise the timetable as teachers tried to ensure that the learning support[6] timetable and the physical education timetable did not overlap, so that children would not miss physical education lessons. This also meant that it was not possible to block every class level together but it was facilitated as best as possible (Appendix P).

Another necessary organisational change which was found at stage 1 and was addressed with the Principal was the lack of appropriate access to outdoor facilities between 1.30pm and 2.00pm. Teachers who had their physical education classes scheduled at that time expressed concern at the lack of respect shown to them, their teaching and their classes by adults walking through the school yards to collect their children[7]. These adults, usually parents, did not think anything of walking through a lesson in progress and the teacher commented that *'every week he has that problem that the parents just walk through the middle of their class.'* (FN 05.02.07) This activity constrained these teachers' and children's lessons each week and was a health and safety concern. The school's environmental context was proving to be a barrier in providing quality physical education lessons. One resource which is key to O&AA lessons is the school grounds and I observed that many of the lessons continued to be disrupted (LO Amanda 1, Seán 6, Claire 6, Eve 3) by parents collecting their children from junior and senior infants at 1.30pm at stage 2. This not only disrupted teachers, but some accompanying young children played with equipment and/or removed equipment making life difficult for the physical education classes operating at these time. Unfortunately this remained a barrier throughout the PDP, for the teachers

[6] The learning support timetable is where children are scheduled for extra help or support in certain subject areas with the school's resource teachers. Children normally leave their own class for this extra tuition.

[7] Infant classes finished at 1.30 in the study school. The study school yards were also used to access a neighbouring school which finished at 2pm. The study school finished at 2.30pm

timetabled at that time, as the Principal was unable to find a solution, due to the layout of the school.

During the PDP at stage 2, basketball and Gaelic football coaching was provided by external coaches for some of the classes during school hours. These coaching sessions fitted in with the external coaches' timetable and not the class's physical education timetable. Therefore on two occasions, there were basketball, Gaelic football and two overlapping O&AA lessons happening in the school yards. This caused problems for the class teachers teaching O&AA as they assumed as it was their physical education time that they would have access to the facilities but this wasn't what happened;

> *She [teacher] was quite annoyed about the confusion of, space allocation each week, because it seems to impinge on her quite a lot. And she didn't know what space she would or wouldn't have each week in order to plan.* (FN 09.10.07)

> *Throughout the day going on through all the lessons, there were basketball and gaelic football coaches in. So some teachers were quite limited with, with what they could do, in that they were very limited with the yard space they had. They also had to take care with children running around madly, orienteering as there was maybe three other lessons going on … around the school at the time.* (FN 19.10.07)

Therefore a barrier to be addressed, following stage 2, in school policy and practice was the prioritisation of facilities for teachers teaching curriculum physical education and any external providers would have to avail of whatever space was left available to them. The outcomes of the implementation of one organisational change (timetabling) and the lack of implementation of another (protection of external teaching space at child collection times), demonstrate the importance of providing the correct environment in enabling effective teaching of physical education.

Propositional Statement 4: Teachers gained confidence as their knowledge systems expanded

The PDP was designed to provide teachers with opportunities to increase their content knowledge which in turn would provide the foundations on which to build pedagogical content knowledge. Using constructivist theories of learning as well as cognitive apprenticeship theory, throughout the PDP, knowledge would be produced through contextualized activity, building on teachers existing knowledge.

Pedagogical knowledge. The fact that teachers knew their classes, had class systems and structures in place and knew their children made the PDP much easier for them. For the facilitator, lack of knowledge of the children made PDP facilitation, in context, difficult at times. The difficulty lay in being able to quickly call children by name, or to link other curricular activities being covered by the teacher in class, to the physical education lesson; *'We have the practical experience of teaching. Not saying that you wouldn't but because I look at you as a lecturer in St Pats, that's the way'* (1 FGT Michael 6). The teachers recognised this difficulty, and for this one late career teacher, who felt that the teachers in the school should be better able to teach than the facilitator who had less teaching experience, even if an 'expert' in physical education. The teachers' had good pedagogical knowledge, based on their experience as a teacher and their knowledge of the children in their class. Most of the teachers had established procedures (for organising equipment, grouping children, taking warm-ups, managing and disciplining children, providing feedback to children etc) which were observed during the PDP. Teachers' management of children organising equipment for O&AA improved as teachers gained content knowledge, as until teachers knew what they were going to teach within an activity they did not know where to place the equipment.

Content knowledge. From interactions with teachers, primarily through the focus groups but also incidentally during the unit of work, it could be seen that content knowledge at stage 1, was beginning to develop and with this knowledge came confidence;

> *First lesson until, up until now, 10 times better than they were in the first lesson because it's only through experience I think that you actually do a good lesson. As regards the first one I wasn't as competent as I thought because I hadn't a clue whereas now I'll be fairly confident to take them out. You know enough now to do a bit.* (1 FGT Simon 3)

> *So it's in the confidence in teaching it, although I have the interest it's just the confidence. And that's where the extra, little, support is great because you can have whatever you have on paper but until you see it being taught.* (1 FGT Natalie1)

> *I'd be happy to do it now, yeah … I'd be much more comfortable with it; those four lessons anyway, yeah. Again, the two lessons I haven't taught I would be a bit iffy about though.* (1 FGT Cathal 3)

Teachers like Simon, who had not taught a lesson in O&AA, still lacked confidence. By week three of the PDP, this increase in confidence meant that over a

third of the teachers wanted to team teach or teach themselves with me close by to offer support if necessary. Teachers pointed to O&AA requiring technical language and specific knowledge which they may not have had before the PDP. The nature of O&AA also required knowledge and confidence in these areas to ensure quality lessons are provided to the children.

At the end of stage 1 and the O&AA unit, teachers were still a little confused as to what O&AA in the primary school represented. They still had some preconceived ideas about O&AA being linked to the notion of an outdoor environment such as a national park or an outdoor and adventure centre, the idea for most being O&AA takes place in the 'wild'*; 'I thought it was much more adventurous….I would probably be thinking of going up mountains…'* (1 FGT Moira 1). This is not to say that the O&AA strand does not include aspects of 'off-site' activities which may be undertaken by teachers and children in parks and adventure centres. As teachers were slowly coming to terms with the content knowledge for their own class group they began to ask questions about the content for other class groups. As each group of teachers were spoken to in isolation from the other class teachers during interview/discussion, teachers never saw or heard what other classes were doing and how their lesson content fed into the overall curriculum. Teachers questioned the O&AA content other teachers were teaching, to ascertain whether they were all teaching the same thing – as happened with the schools games programme. This discussion showed how teachers were beginning to reflect on the content and the overall programme and not just their lessons. It also pointed to an emerging barrier – the PDP was too context focussed. If teachers had different classes the following year where O&AA content was very different they would require the continuing support to add to their content knowledge as the fear would be that they would teach the same content to every class without consideration of continuity or progression of learning. Future PDPs would need to find the balance between contextualised and general support, in order for teachers to at the very least acknowledge how each classes lesson content aligned with the full programme and curriculum content.

At stage 2 of the PDP the provision of resources, materials, modelling of lessons and other minor forms of support continued to allow teachers to build on their content knowledge of activities and ideas and encouraged them to use already developed classroom pedagogical strategies in the physical education context. Teachers were now familiar with the various strands units of O&AA and also how to include these strand

units in a lesson; *'I found that there was much more variety to it than I thought to begin with…I just thought it was map reading and following controls...'* (2 FGT Cathal 3). *'Activities outside, problem solving…challenging them…obviously orienteering'* (2 FGT Miriam 5). *'There is orienteering…working together …communicating…a lot of co-operation involved* (2 FGT Karen 4). *'It's intellectual challenge mixed with physical, actually running, finding things, recording, so there's a little bit of everything, teamwork'* (2 FGT Sophie 6). *'Didn't know what orienteering really was. I've never done it before. I think it's great like you know'* (2 FGT Seán 6). *'I found that it was much broader than what I actually thought outdoor adventure was. I had a much more limited view of it'* (2 FGT Moira 3).

During the focus groups, at stage 2, the infant teachers were able to compile a list of all the aspects of the strand including treasure hunts, scavenger hunts, games, fun with the environment, nature walks, walking with a purpose and orienteering that constitute O&AA. When asked what O&AA was, there was a predominance of responses from senior teachers, centred on the skill of orienteering, with social skills such as teamwork and communication featuring strongly.

Related to this, about half way through the unit of work I began to notice that teachers were focussing on the orienteering aspects of the lessons and some of the teachers of senior classes were leaving out the challenge activities at the start and end of the lesson. Many of the teachers interviewed discussed a lack of knowledge or lack of confidence with the use of technical language associated with O&AA such as 'control card', 'orientate', and names of pieces of equipment such as 'bull ring' and 'hula hut' for example. Jack expressed his views on the language;

> *I suppose it compares to kind of a person's first faring into IT. I mean there is technical jargon there and things you just have to learn and you can get away with a level of ignorance... but you really need to know your stuff; you have to have a certain base-level of good solid knowledge for orienteering.* (2 FGT Jack 4)

Cathal (fourth class teacher) felt that he had difficulty explaining the activity, and although he knew the content, he had difficulty conveying the activity instructions to the children as fluently as the facilitator; *'... he commented to me after I told the children what to do, and sent them off, about – you just say that off pat, I could never get all of that'* (FN 06.11.07). One teacher noted that the teachers should use the language of the subject also to reinforce it with the children;

> *I think another important thing that has just struck me is when you are doing your Outdoor and Adventure, call it Outdoor and Adventure and call it scavenger hunt and call it orienteering. And say, we are doing orienteering this week or we are doing… As opposed to just setting them up doing it and then they don't even know what they did.* (2 FGT Alannah 5)

Teachers had not been using the language of physical education, the descriptive language which describes the strands of the curriculum and the strand units, when teaching. Within the school, whatever was being carried out at physical education class time was known as physical education or PE. This in itself led to the limited view teachers and children had of physical education. This became obvious through the teaching of O&AA where teachers felt they needed more help in the area of technical language of O&AA and organisational strategies for O&AA activities. The lesson observations during stage 2, indicated that teachers were coping very well with the technical language and organisational strategies, due to the increase in their content knowledge; *'Excellent explaining – children active- modified activity so children had lots of goes as time for activity was too short…..good organisation of equipment for tidying'* (LO Eileen 3). *'Equipment very well organised…clear instructions, regular questioning, obvious learning'* (LO Eve 3*). 'Good management – explained in class. Very organised, very thorough…..children not afraid to ask - teacher took two girls and explained walking them through the activity'* (LO Miriam 5). '*Children did all organisation under teacher direction'* (LO Amanda 1). *'All activities explained clearly – what was required and how done. Organised equipment, out and in, in a very methodical fashion'* (LO Alannah 5).

Pedagogical content knowledge. Content knowledge on its own would not be enough to enable teachers to teach a quality programme of O&AA, pedagogical content knowledge was imperative. I team-taught with Mary and noted that her pedagogical knowledge. She was a capable, late career teacher who had a wonderful way with young children. This coupled with the content knowledge she has gained led me to believe that Mary was beginning to master pedagogical content knowledge;

> *She [Mary] knew her class best. She was able to get through the activity with her class and was able to explain things to them and now that she knows the activity, the next time she does it the organisation will come quicker and easier.* (FN 19.02.07)

Although teachers were becoming familiar with O&AA, teachers also identified that they would still require support in developing content knowledge and pedagogical

content knowledge; *'...the only person slowing them [the children] down is me…'* (1 FGT Eamonn 3) *'I'd need more practice, to be honest, I don't think I would be confident taking a class out yet.'* (1 FGT Lena 4) *'…it's the games that I don't know…to be more familiar with the warm-up games (*team challenges*), they would be my downfall….'* (1 FGT Elaine 4)

> *I think I would need to go through it all again myself…in my head or with…with all the equipment so that I would know exactly. Because I would say it could go really wrong if you didn't know…exactly what you are doing.* (1 FGT Amy 1)

The teachers in the study school were all qualified teachers with varying levels of experience. One teacher expressed how he had thought that because they were all teachers that they should be able to teach and therefore all they would need were the notes/lesson plans and they would be able to teach the content. However, he did comment that he found the interaction between facilitator and teacher important simply as teachers were shown what *'pathway to go down and given sequential following so outdoor and adventure meant something else to us [them]'* (1 FGT Michael 6). (Michael was referring to the fact that there was a series of lesson which showed continuity and progression when he spoke of '*given sequential following'*). Teachers were able to judge the learning progress of the children as they were aware of their ability and they applied this during O&AA lessons, for example the infant teachers felt that more repetition of activities would be important for their classes to reinforce new learning concepts. Other teachers pointed to their ability to group children according to their academic abilities, rather than randomly assigning children, to activities to enhance learning opportunities.

Teachers were beginning to adapt activities to suit their children's needs, pointing to the fact that they were moving towards pedagogical content knowledge; *'…trying to think of variations, now myself, that you could do. Even to use aerial photographs rather than maps…it has got me thinking definitely. So I am happy…'* (1 FGT Cathal 3) and some teachers were quick to point out activities which could be integrated with other curricular areas especially geography; *'Yeah there is a tie in with let's say geography…'* (1 FGT Eileen 2).

> *But even like the layout of the school and the playground and….do you know, like they might draw a plan of that themselves, say in a geography class or whatever else and then it will be brought in like…with the stuff you were doing was to find different…different items.* (1 FGT Amanda 1)

At this stage many of the teachers still had to teach the unit of work themselves. Teachers at stage 2 would have the opportunity to teach O&AA and further opportunities to adapt lessons to suit their and their children's needs.

During stage 2, direct observation of lessons taught by teachers showed that, although working with resources which has been facilitator provided, the importance of context and uniqueness of class groupings came through and teachers were able to adapt and change activities accordingly; *'Planning done - all equipment ready. Changed layout from modelled one to suit self – worked better'* (LO Amanda 1). *'Equipment planned and organised. Teacher created own master poster'* (LO Eve 3).

Although there may have been some hesitancy, due to anticipated child misbehaviour, to embrace the teaching of O&AA, teachers were still willing continue with the PDP and were surprised when they realised that the children would did not react in the way they thought. One teacher describes her concerns prior to teaching on her own;

> *Would they kind of run wild. You know because this was a chance to go out into the wild now, because it is so….I knew you have it set up, but it is freedom in terms of running around, running here and there. I didn't know if they would just go…if they would just ignore the task and take the opportunity to run around and have a bit of craic. But they didn't at all, you know they didn't.* (2 FGT Amanda 1)

During meetings with the teachers throughout the PDP the rationale for the sequence and flow of the lessons was discussed and through the PDP process the teachers learned how to improvise and use the resources more flexibly. There were mixed reactions to the resources with some teachers, like Eve, adamant that they were going to teach the complete prescribed lesson;

> *I know I did everything, I stuck to it [the lesson plan] religiously and I was out for ages…but I just wanted to make sure that I was able…I got them to do everything, there was a lot in the lessons.* (2 FGT Eve 3)

And then others such as Michael (LO 5), Coleen (LO JI) and Elaine (LO JI) taught only the main part of the lesson and either included a playground game or a team game to extend the lesson. Michael felt that a physical education lesson could comprise of any aspects of physical education regardless of strand and also gave into pressure for the children to play matches during physical education time. Future PDP design needs to address curriculum knowledge and overall programme planning prior to embarking

on individual strand PD. Although Coleen and Elaine were confident with the O&AA aspects of a lesson, rather than including an O&AA introductory or concluding activity, they reverted to other activities they felt comfortable with and which they felt were fun for the children. This might also be addressed with curriculum knowledge and programme planning in any future PDP.

Some were confident to work within the lessons and adapt and choose as they felt suited their class;

> *I just used that as a menu though. I mean the day that I had it inside with you three weeks ago, there was five things to do and I did three, and I cut one completely short. I did it but just did another version of it. I think it's a menu and its brilliant to have more of a menu to choose from. I think it's great.* (2 FGT Moira 3)

Amanda who would not have rated herself highly as a teacher of physical education prior to the PDP expressed how she felt following the PDP*; 'Once you try it there and then you feel more confident. You know what I did that and it was fine and the world didn't end. Grand. I'll maybe do it again'* (2 FGT Amanda 1).

From knowledge to confidence. All the teachers said they felt confident enough to teach the O&AA strand prior to stage 2, although one teacher did not attempt to teach O&AA when it came to stage 2 (discussed later in this section). During the implementation of stage 1, of the PDP, teachers began to say that they felt more competent in their knowledge of the strand and would be confident in implementing the O&AA strand the following academic year. *'It's the one strand I wouldn't have been confident to teach and now I definitely would teach it next year the fact that I have seen it and experienced it I would'* (1 FGT Elaine 4). *'I think I would do a lot more of it next year and the kids really loved it…'* (1 FGT Nicole 2). Claire, a fifth class teacher, during a conversation having modelled a lesson with her class said that;

> *She felt really confident, she learnt far more from just watching two lessons with me than she had watching the whole PE In-Service and that she said – you know we have the notes, you know how to do it the next time – she felt far more confident in teaching it. She said that she would have no problem teaching it next year.* (FN 26.02.07)

Although knowledge brought about a confidence, many of the teachers related their confidence to seeing the O&AA lessons modelled. There was a strong relationship emerging between knowledge gain through modelling and an increase in confidence to

teach. However, when analysing the answers of the teachers from fourth class more closely, there were varying levels of confidence. These varying levels of confidence also indicated that the teachers would require varying levels of support in different aspects of the strand during any future PDP; *'I'd need more practice at it to be honest. I don't think that I would be confident taking a class out yet'* (1 FGT Lena 4). *'...I wouldn't be the best teacher of PE….so it showed me – I feel I could do it by watching you'* (1 FGT Lisa SI).

> *Orienteering I wouldn't mind. It's the games [challenges] that I don't know. That would be the only thing, just to be more familiar with the warm up games. They would be my downfall, the orienteering itself I didn't mind once I was shown. I liked that'* (1 FGT Elaine 4).

> *I think I would need to go through it all again in …in my head or with… with all the equipment so that I would know exactly. Because I would say it could go really wrong if you didn't know…you really need to know exactly what you are doing. What is supposed to happen. It could be just chaos. (1 FGT Amy 1)*

Mary in junior infants stated that she would teach O&AA again. She based her confidence not on content knowledge but rather on the class she had, and how confident she felt with them;

> *Yes and I wouldn't be as afraid of it….A very big thing is trusting your class. The thing is until you bring them out each particular class is different and I was afraid of this class and they weren't as bad as I thought they would be outside, you know. I was a bit afraid. As the first time I took them on a nature walk that just went shshsh [sic] all around.* (1 FGT Mary JI)

Due to the classes behaviour in the classroom, indoors for physical education, and on a previous lesson outside, Mary was hesitant in taking the class out for O&AA. However, this was not the case, much the opposite, because the children had activities planned and organised they remained on-task and there were no behavioural issues. Through significant changes in teachers O&AA content and pedagogical content knowledge, teacher's confidence and motivation to teach physical education (their pedagogical content knowledge) was enhanced as a result of teaching at stage 2 of the PDP. As one teacher put it; *'I don't think it's a reluctance on behalf of teachers not to do these things. It's just that they don't really know what to do.'* (1 FGT Amanda 1) and a late career teacher agreed;

> *I have to be really honest about things, of all the subjects PE would be the one that I would feel at sea. So it's been a brilliant help. And, you know, it's not*

> *that people don't want to do it, it's just that maybe they don't know how.* (1 FGT Nancy JI)

This in turn helped them become more confident and competent in their teaching of physical education and they began to recognise physical education as a subject rather than a 'break from the classroom'. A marked increase in confidence was noted in both the frequency and strength of comments given in the focus groups, in the teachers' ability to teach the strand units of O&AA following their experience of teaching the strand with minimal support. *'I found the experience of it better than I thought from these [lesson notes], yes I'm fine…I'm doing alright'* (2 FGT Moira 3). *'I think I have been teaching it [O&AA] for two years now. I would definitely do it next year…because in my head I have six weeks work planned without thinking about it'* (2 FGT Coleen JI). *'Yeah this is fine. I can do this. I can manage this. This isn't sort of daunting task as I thought'* (2 FGT Nancy JI).

In contrast to the teachers who felt they knew enough about O&AA to teach it well there was one teacher who lacked confidence in her own ability to deliver the O&AA unit. Karen, did not teach the O&AA strand to her class and swapped with another teacher, whereby she taught music for that teacher and the other teacher taught O&AA for her class. I would describe Karen as a very conscientious teacher who during the initial PDP wanted to ensure that she had everything covered and that there was no room for any mistakes in her teaching. When asked why she didn't teach O&AA at stage 2, Karen responded honestly;

> *I didn't study this in college, the orienteering, and never done it before so I think it is just a confidence issue and like the others are saying, just the jargon and knowing … I think I'd need to be, you know, it did help last year seeing you model it but I think what I need, me being the type of learner that I am, I need to have it written down and walked through it with you without the children and I would need to write it down myself. It is part of, I think, being a perfectionist as well. I want to know exactly what I have to do. Sometimes if there is something I feel I can't, I feel I am not confident at, I just leave it, you know… I am just the type where I need to have it written down and nearly write it myself.* (2 FGT Karen 4)

By asking another teacher to teach O&AA to her class, Karen saw the benefits of O&AA and wanted her class to experience this, rather than reverting to another strand during physical education time where she may have felt more comfortable. Although this practice is carried out in some schools, it would be imperative that teachers have a basic knowledge of the learning their class is undertaking to be able to

integrate into other class and subject activities. Any future PDP would require that the various types of learners would be catered for more appropriately and that the principle of personalisation of support continue to be adhered to. This approach may not be sustainable as presented in this study, however further investigation into an in-school mentoring scheme, where identified teachers support new teachers as they enter the school is required. Collegial support through established teacher collaboration at the different class levels is also an option, where an experienced teacher models activities and supports new teachers as necessary. This would allow for support to be self sustaining within a school provided the organisational structures were established to facilitate the support.

Self-efficacy questionnaire. There was a 68% (n=19, 68% female) return rate of the self-efficacy questionnaire both pre (T1) and post (T2) teaching the O&AA unit of work. Teachers (79%) who completed only the baseline measure [51.25 (± 6.55)] were not significantly different from those who completed the measure at both time points [47.95 (± 8.35)]. Table 6.7 displays the descriptive statistics for each item, all items had a range from 1-10). The 8-item measure yielded an acceptable calculated alpha of 0.8 (Field, 2005).

Table 6.7 Teachers self-efficacy questionnaire – mean distribution and standard deviation across items Time 1 and Time 2

Item Ranked	Time 1		Time 2		p-value
	Mean	Sd	Mean	Sd	
Planning	6.00	±2.160	7.47	±2.47	$p<0.007$ [2]
Equipment	5.89	±2.447	6.63	±2.45	
Warm-up	7.53	±2.547	8.00	±2.38	
Stretching	7.21	±2.573	7.53	±2.48	
Challenge	5.32	±2.262	7.79	±1.47	$p<0.002$ [1]
Orienteering	4.74	±1.881	7.21	±1.99	$p<0.001$ [1]
Walking	4.68	±2.262	6.58	±2.46	$p<0.009$ [1]
Management	6.58	±2.317	7.05	±2.17	
Total	47.95	±8.35	58.26	±11.41	$P<0.001$ [1]

Note. [1] Paired samples t-test. [2] Wilcoxin Signed-Rank test.

Over time teachers' total confidence in their ability to carry out the tasks involved in teaching the O&AA strand increased significantly from baseline to follow-up, (47.95 vs. 58.26, ($t(18) = -4.213$, $p< 0.001$).

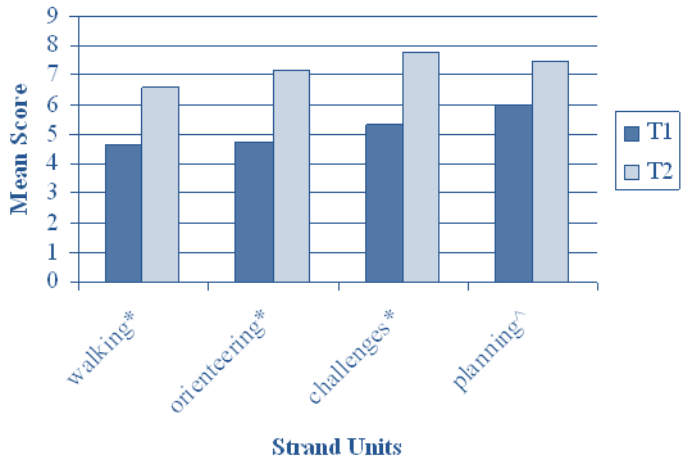

Figure 6.2 Lesson content areas which showed the most significant increase in confidence by teachers

Note* Paired sample T-Test ^ Wilcoxin Signed Ranks Test

The specific aspects of teaching O&AA which showed a significant improvement over time was in the content areas of outdoor challenges ($t(18) = -3.702$, $p<0.002$), walking ($t(18), = - 2.863$, $p<0.009$) and orienteering ($t(18), = - 4.198$, $p<0.001$). One area of organisation, planning also improved significantly over the duration of the PDP ($z = -2.41$, $p<0.007$) (Figure 6.2). The findings from these measurements provide further validation, through triangulation, of the teachers' qualitative responses. The teachers in this study increased their self-efficacy and felt more competent in implementing a new strand by the end of the study. These findings confirm the value of investing in teachers by developing their expertise to a high level through the provision of high quality professional development programmes.

Teachers' knowledge of children expanded. Due to the nature of O&AA where the children were responsible for each other and where activities involved co-operation and trust, teachers learned a lot about their pupils which may not have come to light through other subjects;

> *And kids who help each other, I have seen loads of them try and assist, you know, keep helping each other. Even the blindfold challenge, some of them are actually very good to others and will help the different group even. So it is lovely to see a different side to the kids.* (2 FGT Alannah 5)

> *In one lesson I was surprised…the little boy who needs a lot of help in my class, strangely enough, connected with another boy who's very kind and on two occasions, really helped him out on two different lessons and they just clicked*

> *together. I didn't even do it [pair them]. They did it themselves and I found that amazing…I didn't see it in class ever.* (2 FGT Moira 3)

All teachers spoke about how children who they perceived as less able in physical education, felt less threatened during O&AA when they had opportunities to participate with their peers of a similar ability and attitude and this enhanced these children's motivation to engage, and therefore learn in physical education. This knowledge impacted further on teachers' willingness to teach O&AA, as they saw that children who may not necessarily be games players can excel in other areas of physical education.

Back to basics. Teachers commented on the amount of planning they recognised had been done and they had to do throughout the PDP; *'You would have your activities arranged, extra follow-on activities …..so you'd have to have all that thought out before, there's a lot of thinking before you went out'* (1 FGT Sophie 6). *'There's a lot of preparation, getting all the tags put out and all that'* (1 FGT Seán 6). *'That would be the hardest thing in terms of organising it [the lesson], you know, the actual putting out the equipment'* (2 FGT Simon 3). *'I think your advance planning or how familiar you are with the material is huge'* (2 FGT Eileen 3).

> *You need to be organised. I found that anyway. You need to be so organised yourself…knowing what it was, knowing what equipment you needed yourself, what maps you needed, just what you needed yourself, what you were doing…because if you didn't know how were they supposed to know.* (2 FGT Siofra 2)

One NQT had a different perspective on planning. Natalie understood that as a new teacher she needed to plan and prepare all her lessons;

> *It's a little different for me. Because I'm only new starting off I had to do an awful lot more preparation in my head because I am not experienced enough that things are natural. So I'm used to doing an awful lot of preparation nearly for everything because I am not used to doing it yet.* (2 FGT Natalie 1)

The other teachers in the school did not see themselves as new teachers although in the context of teaching O&AA they were again NQTs and in theory should do as NQTs do and plan and prepare appropriately. The planning and preparation involved in trying to teach something new, I thought would have been obvious to the teachers; however they seemed surprised that so much planning was necessary in physical education. Whether this was due to the fact that it was physical education and they had

not planned for physical education previously, or because O&AA was an area that they had no experience in, merits further investigation. Planning whether a natural habit of teachers or not, should be highlighted in future PDP design, as a requisite part of undertaking any change in teaching practice.

Sustained Support. The data show that professional development needs to be sustained over a period of time to consolidate learning. One teacher pointed out that further support was necessary prior to teaching orienteering as they saw it as specialist and requiring knowledge not just of technical language (content knowledge); *'…but even the terminology things, all these words like control and things like that. I wasn't sure what a control or control card was. There was a bit of a deluge of information at the start…'* (1 FGT Cathal 3) but also the capacity to explain clearly to children the task at hand (pedagogical content knowledge);

> *Orienteering is one I would be seriously worried about as I don't have the specialist knowledge about how to set up something like that and I still don't think I would have the specialist knowledge to set that up the way you did.* (1 FGT Sophie 6)

'I know orienteering….and I am not great at anything like that' (1 FGT Amy 1). Amy didn't feel competent herself in map reading so therefore she felt even less competent trying to teach a child how to map read. At stage 2, in the context of the focus group interview the teachers began to realise that they could come together, talk and work together and support each other; *'And you can speak with someone who had it the previous year and go through it that way'* (2 FGT Amanda 1). By stage 2, teachers recognised that they had become familiar with process and concepts but they were anxious that in future years if they were to change class level they would not have the necessary content knowledge and this aspect of a future professional development programme in a primary school would need to be addressed;

> *I suppose if we were up to fifth class or sixth class next year I know, like, a lot of the processes would be the same but would be on a higher level. But you'd probably, you know, a few of the fears might come back a little bit. You know, that kind of way do you know, you're very comfortable in your class level, and maybe, say, the one under you and above you, but if you walked into, like a higher level at the same time you might…* (2 FGT Amanda 1)

As the PDP programme was introducing O&AA to the teachers and the children for the first time, activities were included according to the curriculum, which were school-site based. Cycling and camping appear in the Physical Education Curriculum

(Government of Ireland 1999a) and they were not included as part of this PDP. There was reluctance by teachers to move offsite and the organisation and planning that it would involve. These activities could be included now that the children and the teachers had experienced the other strand units of O&AA which could be carried out onsite. The next stage, if continuing with the PDP would be to support teachers in the provision of offsite activities, to increase both their and the children's learning opportunities and where they might avail of a larger and more specialised range of facilities and resources. In terms of the types of support provided, teachers requested more resources especially in the form of warm up activities and challenges.

Propositional Statement 5: The professional development programme impacted positively on the children and their learning

Fun and enjoyment. In the school, teachers noticed a change in children's attitude towards physical education during the O&AA lessons;

> *I noticed there was always a buzz around the place…I don't know when I have seen that excitement before and they were really utterly oblivious of me. I was standing right beside them and I might as well have not been there whatever that was I want more of that, to do that!* (1 FGT Eamonn 3)

Overall children enjoyed the O&AA programme, with some being sick with excitement;

> *…I had a girl that went home sick as she had run so hard and so fast. She wasn't well when she came in in the morning, I had to send for her mother to come and take her home….sure she got sick she was so excited [taking part]…* (1 FGT Sophie 6)

Children approached me in the corridors or on the yard and said; *'They loved it and they are saying can we do it again, so the buzz amongst the kids is absolutely fantastic'* (FN 07.03.07). The children enjoyed the responsibility, and respected the freedom they were given by their teachers when they were allowed to move freely around the school when orienteering. They commented on not being under the teacher's nose all the time. The children wanted to be active; *'I think it sort of was PE because if you are running around it was PE and it was kind of fun.'* (1 FGC Boy 4) and expect activity in their physical education lessons (chapter 4) and according to the SOFIT results, the children were achieving the recommended amount of moderate to vigorous activity (50%) in their lessons (Ní Bhriain, Coulter et al, 2007).

The children's concept of enjoyment and fun being inherent in physical education was evident from the beginning of this study. Throughout the study, fun and enjoyment remained important to the children and the teachers. These features were evident in the lessons according to the children; *'And it's usually pretty fun.'* (1 FGC Boy 5). *'... and it's very fun, because I think it's good…'* (1 FGC Boy 2). *'Um I think it's about um, like having fun, being active and um, getting really healthy doing it'* (1 FGC Boy 2). Other teachers at second class level and younger felt their classes loved O&AA and that the content was suitable; *'I had one little one say the other day when she was coming in through the hall with her Mum, to the Mum said, this is where we have fun , Mum'* (1 FGT Kate JI). *'They loved it…yeah they were delighted, yeah. They were very enthusiastic. You cans see it from-they all wanted to do it'* (1 FGT Amanda 1). The teachers recognised that the children enjoyed working in teams and being challenged in the activities; *'I think challenges they enjoyed when they worked in teams and they had to figure it out for themselves like'* (2 FGT Miriam 5). *'Pupil motivation and interest very high'* (LE Cathal 4).

Inclusion. Children also liked to be with their friends when participating in paired or group activities; *'…the key thing for them is pairing off with friends that's a big draw…'* (1 FGT Sophie 6). Though teachers noted the social dynamic in physical education was changing as the O&AA programme continued; *'The way they were talking and encouraging and there was no arguing which I often find I have problems with in teams or maybe it was just the dynamic of it and they go off together.'* (1 FGT Cathal 3). The teachers recognised that their games lessons were not inclusive compared to the O&AA lessons; *'Even the teachers say that it [their PE programme] only caters for the strong personalities. The competitive games players is what their PE caters for which isn't really PE, its more recreation'* (FN 22.03.07).

> *Seán [Fifth class teacher] did make the comment that there were people doing PE that don't do PE and a certain girl … said that she wouldn't do PE. She would just sit around and stand about. There she was doing the activities like everybody else.* (FN 13.02.07)

This observation was supported by other teachers and the Principal. The Principal recognised the impact that the PDP had on the children and in his mind this was an outcome of the PDP that he had hoped would come about;

> *It's obviously impacted the children…you know children are also involved. And you may have even noticed this in going through the yards, where I see a*

> *significant change in that, I was always bothered about, I'm saying girls, because you know, you had girly girls who would stand to the side…..and they didn't want to be there. Whereas now it's cool to be involved in PE and to be there. And they're involved. And if you move through the classes or watch what's happening in the yard, there's a far greater inclusion of everybody…. And they're teaching not the traditional games, children who wouldn't normally be sporty can actually get on, involved in outdoor activities. You know, they can do the orienteering. And this is, this has made it far more inclusive in the school. So I think it has a huge impact on children in the school as well as teachers.* (IP)

The children who may have been on the periphery of groups during games according to teachers were now coming into their own and others wanted to be in their groups, maybe because they now felt that this person had something to offer in the O&AA physical education lesson; *'…the kids really loved it and every single one of them was involved compared ….if you were doing games on the pitch'* (1 FGT Nicole 2). Generally it was these children's intelligence, capacity for problem solving and common sense approach that other children were drawn to for the purposes of the O&AA lessons, according to the teachers. The changes teachers observed in their children throughout the lessons gave teachers the impetus to continue with the PDP and their teaching of the O&AA lessons and encouraged them to embrace (even if with some hesitation) the next stage of the study which would be to teach with limited support. One sixth class girl was quite cynical and pointed out to me, after a trip to the local park for an offsite activity, that; *'our teacher is never going to organise to go to the park again, can't see it happening'* (2 FGC Girl 6). And one of the boys supported her comment by adding that the teachers were *'too lazy'* (2 FGC Boy 6). The children recognised the organisation involved in taking a class off site for an orienteering activity and were very sure that the teachers were only involved because I was there to help organise the activity.

Physical activity. Physical activity was also an important feature of physical education throughout the PDP and although teachers recognised that certain less active activities were necessary for progression and continuity of the lessons they felt the children didn't like these activities as they were inactive; *'with the possible exception for the day when they had to walk around but then that was probably valuable because it does teach them to map read…'* (2 FGT Jack 4). An activity that the children found boring and inactive during the initial PDP was compass work. This part of the lesson was removed and teachers said it would be something they would cover in Geography instead.

Another objective of the PDP was to include some element of competition based in the findings outlined in chapter four. Nancy summed up how she introduced competition in her lessons;

> *We introduced the stopwatch. I know there would be competition in that, even in the last few weeks say to make it more exciting, if you have it say- this is your time, off you go and say you have the same partner or whatever to try and compare so to compare your time you're not comparing with anyone else so it's not a competition in the class and we'll try to beat your time from last week, I found that really got them going and they were flying around the place when they were doing that.* (1 FGT Nancy 4)

Children's learning. Although assessment, formative or summative was not explicit in the aims and objectives of the PDP, mainly due to the fact that the teachers were not familiar with the content, it was implicit in modelling and teaching. It was envisaged that as the teachers became confident and competent teaching O&AA that assessment, differentiation and other related teaching strategies would be included in further development of the PDP. The form of assessment that was used indirectly during stage 1 and 2 of the PDP was assessment to provide the teacher with 'information which helps enhance the experiences of the child in physical education. It can help the teacher discover what the pupils can do and what they know and understand' (Government of Ireland, 1999c, p. 21). It can be accepted that from the findings teachers and children recognised learning was occurring throughout both units of work during the PDP, through teacher and facilitator observations and the focus group interview responses.

Children were quick to respond following stage 1 of the PDP that physical education involved teaching and learning; *'It's physical education, teaching you what to do, teaching you different types of activities and different games.'* (1 FGC Girl 6)

> *But in PE you're learning different things, and you learn different games, and you can show them. And like I learned how to make a pyramid hula hoop [hut]. And I learned um, how to read a map better. And like you actually need those for when you are older…* (1 FGC Girl 4)

This showed a marked change in the children's perception of physical education from the – understanding the environment - baseline findings. The children were better able to describe O&AA following stage 2. Some children when asked if they would be able to describe an O&AA lesson. They still had problems naming activities but were able to describe activities, for example; mapping was used to describe orienteering; an

explanation of a challenge was given rather than the name of the challenge, showing learning. Some examples of this can be seen, such as this boy describing the 'Frogger activity';

> *I would explain the game where you get into groups of three and two of the people get on one pad or marker, they place it in front of the last person who is not getting the disc and then the person jumps to the disc and so on til they get to the other end'* (2 FGC Boy 2).

Or this girls description of O&AA; *'I'd say sometimes you will be doing small games like the hula hut and sometimes you will be blindfolded and be doing maps and pictures and orienteering'* (2 FGC Girl 4). Children were also aware that they were learning during the O&AA lessons in comparison with their physical education lessons, prior to the PDP; *'It's different to what you usually do because you would usually be playing games. You would be kind of learning and you would be kind of educated'* (2 FGC Boy 5). Learning occurred throughout the lessons; *'I really saw learning happening, I saw children educating children, children that knew how to orientate the map showing someone else'* (FN 08.03.07). An increase in children's knowledge of O&AA and the various activities were evident in the focus-group interviews. Children enjoyed learning and had fun; *'I learned how to use a map.'* (2 FGC Boy 2) *'There's two things I like, one, I learned how to work in a team and, two, I learned how to work with a map. And they were both really fun'* (2 FGC Boy 2). *'The map when we were going around I thought that was fun….it sort of teaches us how to use bigger maps as we go along'* (2 FGC Boy 3). A third class girl commented on how the O&AA lessons were different than her usual physical education lessons prior to the PDP and how she liked being challenged in physical education having experienced O&AA;

> *It's a bit better than PE but with PE the teachers tells you to do something and you do it but with orienteering they tell you something to do obviously but with the map. It's kind of challenging and with PE the teacher tells you everything and it's not challenging so practically what it is, is copying the teacher.* (2 FGC Girl 3)

In this study, children from all classes found that an aspect of O&AA which they enjoyed most was that they had to use their heads as well as their bodies; *'It's not really like football…because in football the good people dominate, you don't have to be that smart but you have to be smart to do orienteering and everything'* (2 FGC Boy 5).

Teachers' response to child learning. As the teachers reflected on lessons, both as they happened and following the lessons, some of them commented on how they learned more about themselves and their class. One area that teachers hadn't noticed in their teaching of other subjects but that was very obvious in a physical education lesson was how poor the children's skill of listening to instructions was. This in turn affected how the teacher taught other lessons and made teachers more aware in their teaching;

> *It's a knock-on effect on me, because I've tried to develop, you know, in teaching. Because I could not believe…how hard it was to get people to, to really listen and to kind of internalise. You know they kind of half listen…[this was] a real kind of practical demonstration.* (1 FGT Darragh 6)

Sophie, in reflecting on this comment, noted an organisational strategy which may have solved the problem;

> *I think there's a friendship clause in that as well, though, because when you divide them into groups and they will go off with their own gang, there's huge fun involved in that, and they're all excited and giddy, and they're, you know, they're all immediately thinking about what they're going to say to their pal. Whereas, if they were in groups where they didn't know the other kids, I'd say it'd be completely different. They'd be actually listening then, because they want to do well in front of the others. You know. I didn't try that, now, I have to say now, but I'm going to save it, and I'm thinking about this now.* (1 FGT Sophie 6)

Teachers spoke of the positive effect the O&AA programme was having on children, how they thought it was 'brilliant PE', and how this in had turn had a positive effect on the teachers themselves;

> *One teacher…said she had no complaints about PE and that it is brilliant PE that the children just feel happy with every lesson…she said that before she was getting complaints so she is delighted with the activities and the variety and range and how they [children] are progressing and getting on.* (FN 05.03.07)

Some of the children, primarily senior boys, at stage 2 of the study, still expected physical education to be enjoyable and learning was not a priority for them. The teachers recognised this and began to realise that maybe they were at fault for this lack of learning; *'I suppose PE you see is always associated with enjoyment, you know, first and foremost. It's not really a learning situation for them. You know they want to enjoy it…'* (2 FGT Darragh 6) *'…well if they enjoy it, we enjoy it as well you know. You think, that's great, that was a great PE lesson. I'm brilliant, when you're not really.'* (2 FGT Sophie 6)

One teacher was delighted that the children recognised activities from the previous year and had retained the knowledge;

> *Because in my class I said, "We've done this already" and they already did the photo star. "Oh no, we didn't do this one, but we did something like it." And it's great because they understand the process of it, which is good.* (2 FGT Natalie 1)

Outdoor and Adventure Activities also allows the children more freedom and responsibility for their own learning; *'It's amazing how quickly they learn, like the little strategies keep their thought, or space yourself out, where your two hands should be. I was absolutely mesmerised by that, like, the way they worked'* (2 FGT Eve 3). Infant teachers also began to realise that they learned that they should expect more for their classes; *'They're definitely able for a lot more than we give them credit for I think…'* (2 FGT Mary JI).

The findings here show that the new teaching styles and the subject content was acceptable to the children. They were learning, having fun, being active, were able to be responsible for their own learning and were given problems to solve. All children were involved in the lessons which also appealed to both teachers and children. These positive findings were another form of pressure and encouragement for teachers to change their teaching practices.

Propositional Statement 6: Communication and collaboration developed during the professional development programme

Shared learning. Teachers alluded to the fact that the conversations/interviews both formal and informal were the starting point for them, in coming to understand physical education. They also pointed out that teachers needed to talk more to each other and the children about physical education;

> *...I find this helpful, because I am saying things right here and you might be thinking these for years but I've never thought of them [various aspects about PE] before ever. But I'm saying them now because, somehow the catalyst, I don't know what it is, something crystallises it and I can see it and therefore I can say it. Until I see it I can't say it, so conversation is the medium. I think it is the missing medium of PE. PE is just get out there, go out there and do it. Teachers never talk about it [PE]…* (1 FGT Eamonn 3)

In this study, the process of discussion which occurred during the interviews with teachers was identified as a chance to reflect and consolidate on the knowledge

provided during the PDP. The focus group interviews initially served the purpose of data collection in order to evaluate the PDP, but as the PDP progressed this time for communication began to have a much more important role in the PDP. These discussions/interviews became pivotal in encouraging teachers to change their approach to teaching O&AA and ultimately to question their teaching of physical education in general. They provided an opportunity to question, debate, share and reflect on how the programme was impacting on them as teachers and their pupils. This communication is related to conceptual changes in physical education as teachers were given opportunities to discuss physical education together in their class groups.

Teacher collaboration. As the PDP progressed through stage 2 facilitator support decreased at the request of the teachers. Increasingly I was being told no – my help was not required as another colleague would provide the support; *'When I went in this morning, the other first class teacher was with Natalie, talking her through the activity'* (FN 19.10.07). When I came up with an activity for the infant classes based on Halloween, as an alternative to an activity carried out during the initial PDP, the teachers didn't want me to organise it; *'We'll do it, we'll set it up … don't worry, we'll tell the rest of them, we'll share ideas and we'll do it.'* (FN 19.10.07)

Teachers were beginning to plan and work together as a result of the PDP, or maybe more out of necessity to ensure they continued with the PDP. At stage 1 the findings showed that teachers were beginning to talk to each other about physical education and as one teacher pointed out, *'communication was the new medium of PE'* (1 FGT Eamonn 3). Communication continued during stage 2 of the PDP but it developed from communication to include, planning, organising equipment, sharing ideas and providing feedback on lessons. Teachers were beginning to collaborate. There may have been many reasons as to why this happened but the findings point to a number of reasons why teachers began to collaborate.

As the PDP took a whole school approach and all teachers were involved in the study, the staff voiced that they would feel encouraged to teach O&AA if it was part of the school plan and everyone agreed to teach it together for the same weeks; *'I think you are better off all doing it together, yeah'* (2 FGT Coleen JI). *'When you see everybody else doing it I do think it motivates you to do it'* (2 FGT Elaine JI*). 'The fact that we're all doing the same thing is a huge help as well. So you can ask somebody to go through it to get to know what to do'* (2 FGT Kate JI).

Otherwise teachers commented that they would stick with what they felt comfortable teaching. Collaboration was also going to be a motivating factor in getting teachers to teach the other strands in physical education;

> *… do you know, you kind of, that really does help, if the other people in your class are doing it, like, if the people in your class groups are doing it as well, like, that's enough pressure like, into doing it as well. If you're planning with the other class teachers.* (2 FGT Maeve 2)

Some teachers had commented that during stage 2, when they came into school in the morning they found colleagues rummaging through the resources in the PE store, finding things for lessons. The following week I witnessed this for myself when I observed two teachers working together deciding what they were doing and what they would need for their classes;

> *She said she was coming into school at half-eight in the morning and finding teachers in the PE storeroom, where teachers never went before. And the PE storeroom is just off the staffroom car park. So as teachers were passing in and out there, they were constantly looking in*. (FN 11.10.07)

> *When I went to, walk through the school this morning, there were a group of teachers in the PE store, um, rattling through, trying to get their activities organised. Now, they were working together. They both have, the same class. They were deciding what they were doing. They had their warm-up activities planned. They had an activity decided for the end. But they weren't quite sure how to do it. They had thought it sounded interesting*. (FN 15.10.07)

Some teacher's encountered difficulty with planning and thinking the lesson through to completion prior to teaching, however they found that having a colleague to bounce ideas off helped enormously;

Miriam - *And what you want to hear from your colleague is 'that worked, or make that a bit shorter, prioritise the second part of it.*
Alannah - *Or as Darragh says, 'don't do that that doesn't work.' He says that was the most important thing* (2 FGT 5).

As the PDP continued teachers commented that planning together with colleagues wasn't something they did in physical education prior to the PDP;

> *I suppose the planning is always a concern. How will I structure it? Will it work out? But you know, with the planning and the consultations certainly that*

> *Miriam and I did on Monday…I think it made it definitely easier for me.* (2 FGT Alannah 5)

Some teachers (third class) commented that this year was the first year that there had been such collaboration in the school and not just in the area of physical education; *'I'm here now 16,17 years and I'd say this is the first year that I've actually liaised with the people in the [same year group]'* (2 FGT Eve 3). These thoughts on collaboration were echoed by the Principal who felt the PDP was the driving force behind collaboration in the school;

> *I think this has been the catalyst to a kind of um, team teaching, as in T-E-A-M, as distinct from T-H-E-M-E. But um traditionally, I mean, teachers in our school would have worked in isolation in their classroom. They were very similar…And there weren't many opportunities or great, um, despite the fact that we would have tried to encourage you know, teachers getting together as, as a group at a particular level. And kind of thrashing out a subject. There was no huge enthusiasm for that. Now, I think that is happening now. But it has started with PE. And probably that was the catalyst. The teachers seeing the value in sitting down together, looking at the curriculum, thrashing out what they find difficult, sharing good practice. Um finding what is, you know, that each of them, each teacher has an ability or an interest. And once they shared those interests, then it makes life easier for them. So they're planning together now… but they are not just doing it in terms of PE. You started with PE. And they saw the value in it. And now it's gone onto the other subjects. And they're planning as a group…I don't think it's something that can be imposed…I think it has to happen organically really you know…* (IP)

Eamonn, (third class teacher) stated that my (and the PDP's); *'legacy to the school has been getting teachers to plan and work together'* (FN 09.11.07). Naively, I thought that this was something that the teachers had always engaged in, but both Eamonn and the Principal assured me that teachers prior to the PDP never planned together, sat and talked together, nor worked together on the curricular areas outside of staff meetings, which happened once a month. These meetings did not always include time on curricular areas on the agenda. Following stage 1 of the PDP, teachers made time to sit and plan, and talk, and more importantly they did it together and shared ideas, resources and gave each other feedback on what worked and what didn't. The collaboration had its origins in the research element of the study, specifically the focus group interviews, and though not cultivated as part of the PDP it continued to develop from there. At stage 2 the timetable was restructured in order to ensure similar classes followed each other to ease organisation issues, and this also allowed for teachers to

have a quick chat during the changeover to outline what went well and what might not go to plan due to the equipment not being available.

In second class, the teachers who had been part of the initial PDP in 2006-2007 were quick to collaborate and support their colleague, Siofra, a newly qualified teacher. During the PDP, I went to Siofra to ask if she required any support or help she replied;

> *No, I'm fine, the other two teachers have met with me, have explained to me what to do. They've given me the resources and I'm very happy to go on ahead and do it. They explained to me how simple it was.* (FN 11.10.07)

During the interview Siofra expressed the fact that collaboration would happen more with physical education than with other subject due to its physical nature;

> *I think that it would happen more, especially with this [O&AA], anyway, because, like, when I came in anyway, like, I'd find I'd look, reading through it and that like. How, like, its just on paper ok, it seems grand, then I'd be trying to imagine myself so you'd need to go [and ask a colleague for help] even more so than other curriculum areas.* (2 FGT Siofra 2)

Although teachers liked the fact that they had opportunity to collaborate and work with their colleagues they were also at times frustrated by their colleagues, especially when other teachers did not return equipment after lessons;

> *Sometimes I wanted to do something different, like I ended up doing those two say activities that were quite similar I thought but when I went the equipment wasn't put back so I had…that's what was left and I had to choose…although I didn't want to do that.* (2 FGT Miriam 5)

With the introduction of the curriculum and the roll-out of national in-service the changes that have transpired have meant that teachers are extremely busy in all areas of the curriculum and time seems to be at a premium. Although many of the teachers expressed that collaboration was indeed helpful and encouraging they also indicated that there was not enough time to plan together. Time to plan and time for teachers to meet and plan, especially in the context of the primary school where teachers do not have 'free periods' in which to plan or meet with colleagues, Jack summed up the importance of time and the lack of it; *'It's the investment of time that some of us don't have, to spend two or three hours actually going through … well here's what you do, this map goes with this control, goes with this clipboard, you know'* (2 FGT Jack 4). The Principal was providing some time for collaboration during the year but he agreed with teachers in that it wasn't enough;

> *Trying to free up time I suppose is the single biggest issue we have. And I've done that in terms of taking assemblies, and giving them [teachers] a little bit of time. But it's too short I'm finding. You know teachers have gone in [to the staff room] and invariably you'll have a chat about the weather and the game at the weekend. And its, you know, by the time you've sat down and you actually get into talking about whatever subject you're going to talk about, or planning for the next fortnight, you know, your 40 minutes 45 minutes is up.* (IP)

In summary, effective professional development involved collaboration on a number of levels – collaboration between the professional developer and the teachers, collaboration between classroom teachers of the same class level and collaboration with the Principal and children. These collaborations can lead to a community of practice, a shared vision and a collective responsibility for ensuring all children experience learning through a quality programme of physical education.

Propositional Statement 7: Teachers' and children's perceptions of physical education began to change during the professional development programme

Teachers after the PDP, stage 1, were beginning to see that physical education was more than games and physical recreation (Coulter and Woods, 2007) and some teachers admitted that their idea of physical education was all wrong. They stated that the children too might not have understood that O&AA was physical education as O&AA lessons were so far removed from what they were used to; *'…I would say that they weren't as conscious that it was PE….so you had to explain that it was physical education. I suppose we have to be aware that their notion of PE is very confined too'* (1 FGT Eileen 2). Individual experiences of physical education as well as messages from wider physical culture, shape understandings of the nature and purpose of physical education, where physical education is defined by what is done in its name (Kirk, 2010). Despite Collier and colleague's (2007) call that physical activity opportunities for young people should reflect the changing times, team games continue to dominate physical education provision in Ireland. This dominance influences all aspects of physical culture and impacts significantly on the practices of physical education in schools.

Although teachers were provided with a programme of O&AA and stated indirectly that it had many of the key messages of the curriculum (Government of Ireland, 1999c), such as

- Being broad and balanced, including many of the strand units, offering challenge and achievement; *'You would have everything there to challenge every child.'* (1 FGT Michael 6)
- Showing progression and continuity; *'It was very useful to have the lesson planned out and there was kind of clear progression from one lesson to another…'* (1 FGT Kate JI)
- Being inclusive; *'…every single one of them was involved...'* (1 FGT Nicole 2)

they had failed however to embrace these elements when asked about the future of physical education and specifically O&AA. Michael felt that doing the same thing for a number of weeks might be boring for the children, *'you could have too much of the same thing….and you would have to mingle them [the lessons] every week every so often'* (1 FGT Michael 6). He felt that within a lesson, various strands could be included (such as including a game such as basketball along with an orienteering activity) as well as varying the strand each week (such as having games one week, O&AA the following week and maybe athletics the week after). This would not allow for progression and continuity of learning for the children. Children seemed to be still confused as to the content of physical education lessons, comparing any new activity to their previous experiences of games; *'you think PE would be more physical like playing games or a sport or something but it is different with orienteering and challenges and the blindfold was different…'* (1 FGC Boy 5).

> *I don't really think it was PE that much because in PE we usually play half the class play basketball or soccer and half the class play hockey or that. We play team games, we don't really play small team games where two people run around or three or four.* (1 FGC Girl 4)

Children, although enjoying the O&AA lessons still yearned for games; *'It was good and all but sometimes I would have preferred to play a game of basketball or something like that'* (1 FGC Girl 5). Teachers reported hearing the same from the children; *'…ok we are doing this but can we have a game after, when can we have our game…'* (1 FGT Lena 4). The 'games fixation' seemed to occur from third class upwards. The junior classes didn't have this obsession with games, but did look for a variety in the activities they were offered in physical education and a variety within O&AA. Games were rarely if ever mentioned, by these younger children.

Perceptions of physical education had altered to a minor extent by the end of the PDP. On reflection, I was naïve in assuming that when teachers and children experienced a programme of O&AA and quality physical education, they would better understand physical education according the Physical Education Curriculum. I also assumed they knew what physical education was, but just lacked the confidence to teach it. Although teachers and children could see the benefit of a varied programme of physical education they reverted to providing or demanding a games programme, which in many ways was reverting to their 'comfort zone'. Upon reflection, on completion of the PDP, a recommendation would be that any professional development programme in physical education should begin with a philosophical discussion around physical education and what is understood by the teachers and children as physical education. The school community needed to have a physical education ethos on which a PDP could develop.

Prior to the PDP teachers did not have had the knowledge and confidence to teach physical education (Coulter and Woods, 2007), and they may even have been under pressure from parents to teach the 'core' subjects of the curriculum;

> *PE hasn't always been seen as …a core subject. You know parents in …[the study school]… have huge expectations for their children. Which is a great support in terms of school - if parents have high expectations, you know, children are coming in ready. You've got the support of parents and that. But that brings pressure as well on teachers in terms of they feel that the core areas, literacy, numeracy they get priority over everything else. So PE may suffer at times, because you know, we have an exam in the senior classes next week. So that's an important context. Sometimes teachers feel there's so much pressure to deliver in those core areas, that PE could be easily be put aside once or twice.* (IP)

The PDP exposed teachers to an alternative understanding of physical education. Following the PDP it was evident that teachers were beginning to understand physical education and their comments and facilitator observations, at stage 2, could be matched with more key messages of the Physical Education Curriculum (Government of Ireland, 1999a);

- The development of knowledge and skills over a unit of work; *'I thought it was good, because there was progression each week …'* (2 FGT Amanda 1).

I think the block [unit of work taught as a block of lessons over a period of 6 weeks usually] is good because it is like anything else, like the computers, you are building up on what you learned last week. If you wait six months you will have forgotten. I think the block is good because it is an incremental thing like where you must orientate your map the first day, find controls the second day and then full blown orienteering. I definitely would block it. (2 FGT Simon 3)

- Physical education included more than just games; *'Like you forget the kids in your class who have no interest in competitive games and they love doing the orienteering and the challenges…'* (2 FGT Alannah 5).

- Physical education should be inclusive and include physical activity though not exclusively; *'So everyone is involved and it is a team effort.'* (2 FGT Michael 5) *'High level of involvement and activity'* (LE Mary JI).

Although teachers were beginning to reconceptualise physical education, in the senior classes (fifth and sixth) children's reconceptualisation at this level was slower to occur; *'…its [O&AA] absolutely brilliant, they really do love it… but then after it they still wanted to play PE. You know, they don't look at it as PE. It's not PE. No, real PE is a game, football and basketball'* (2 FGT Seán 6). It was pointed out that the children *'are programmed, they are programmed to ask that [for games]'* (2 FGT Michael 5). The Principal went further to explain why the teachers and children were 'programmed' to expect games in their physical education lessons;

It'd have been a lot of structured games being taught. In the upper end of the school teachers would have divided their classes into three groups, said right lads, you play football, you play basketball, and you guys there play hockey or rounders. You know without a lot of development, skill development in the lesson. So, and this is what children had come to expect. So it was relatively unplanned in terms of the lesson, and in terms of a progression in the school … well the children would certainly have perceived it as recreation time. (IP)

One teacher was adamant that teachers should try to manage children's expectations and in so doing help with their and the children's reconceptualisation of physical education;

Do you know what I think it is important as well, is have your plans for your PE and do them, even if they go against the grain. The kids might say – oh teacher, we want games, we want games – in actual fact if you do orienteering and different challenges with them they will learn to adapt to those and enjoy those. (2 FGT Alannah 5)

Teachers in the past would have abdicated their responsibility to pacify children demanding games. As a result of the PDP teachers were beginning to see that it was their responsibility to ensure children knew and understood what physical education is, and more importantly by teaching a quality programme of physical education children would come to understand physical education and its content. As well as teachers' concept of physical education changing so too did their concept of O&AA and this can be summed up by the comments of Claire and Sophie (2 FGT 6);

Sophie: *... to be exposed to how to do it, just even one lesson, how to do this, how to do that, how to do the other, and they've done it, you've exposed them to it.*
Claire: *At least you'd be a bit more competent in that than dance, we'll say, and gymnastics. Two more strands we're not covering really. So at least we can say, okay, we're doing this and this and this.*

However, not all teachers changed. One late career teacher who had embraced the initial PDP but had difficulty implementing the O&AA programme himself at stage 2 but did not ask for support. He came under pressure from his class to provide games, and reverted to his comfort zone and gave into the class pressure to do games; *'Darragh didn't do outdoor and adventure, he did games'* (FN 09.11.07).

Children's understanding of physical education continued to include discourses from health, physical activity, enjoyment, sport and physical education. When commenting on physical education and its association with health, children used the following descriptions; *'You do it so that you don't have to sit in a stuffy classroom'* (1 FGC Girl 4). *'It gives you an alternative to just sitting inside all day'* (1 FGC Boy 6). *'It's something that you do exercises, and its good for your heart'* (1 FGC Girl 1). Replicating what was found in the initial interview – understanding the environment - children's connotation of physical activity and physical education still got confused, with some children mistaking free play for physical education; *'I do PE at home, I do gymnastics'* (1 FGC Girl 1). *'I bounce on my trampoline'* (1 FCG Boy 1). Many of the children recognised that physical activity was an aspect of physical education; *'It's something where you run around'* (1 FGC Boy 5). *'Running around'* (1 FGC Girl 2 and 3, Boy 2). Nevertheless, this could be addressed in future and further professional development programmes with the teachers or another programme aimed solely at the children. Again at stage 2 of the PDP, when asked what is physical education, games and other sports did not feature to the same extent, when asked to explain what physical

education was. It was mainly the boys from third and fifth class who said that they would like physical education to consist of games rather than describing physical education as games; *'I think PE should be fun and games. Like …basketball, hockey, soccer, rugby, rounders'* (2 FGC Boy 3). *'Well I just prefer football and, or Gaelic or rugby'* (2 FGC Boy 5). Children did not mention that other strands such as dance (other than 2 girls mentioning Irish dancing), athletics or gymnastics were physical education and some felt that O&AA wasn't 'real' physical education, even though they enjoyed the O&AA; *'…but sometimes it doesn't feel like PE, because PE, you're normally just running around and doing football and stuff'* (2 FGC Girl 4). *'Like you are reading maps and people wouldn't really say that reading maps is PE'* (2 FGC Girl 6). Younger children were sure O&AA was physical education because they did it during their physical education time; *'Because we do it at PE time, and if we didn't do it at PE time it wouldn't be PE'* (2 FGC Girl 1).

The children echoed the teachers' responses on how the unit of work should be presented week to week. Children from all classes felt that PE would be boring if it was the same every week and that physical education was supposed to be fun; *'I think it's better to do different things … sometimes you get bored of doing the same thing over and over again'* (1 FGC Girl 5). *'I think you should do something different every week'* (1 FGC Girl 3). *'It's supposed to be fun like'* (1 FGC Girl 5). *'Sometimes our teacher does like, every single week she does, like nearly the same thing … it's a bit like, getting boring'* (1 FGC Girl 4). Even though children only did O&AA for six weeks, they got the impression that they were doing these lessons all the time and thought that it would be better of the lessons could be more varied, and O&AA done every second or third week. Yet they had failed to notice their physical education programme which consisted of weeks of games at various stages throughout year, prior to the PDP, was not very varied.

Summary

Much has been written internationally on professional development and effective professional development in the area of physical education, this study sought to bring the lessons learned from these studies to an Irish context. To work closely with a school community, over time, to build their knowledge and expertise in physical education and more specifically the strand of Outdoor and Adventure Activities was the intended outcome. The results outlined the support, knowledge and perspectives of

principal, teachers and children to the PDP. At completion of stage 1, the teachers and children were positive about their experiences during the PDP and looked forward to teaching the strand in the forthcoming year. Provision of resources and support through modelling by an external expert were reported as playing a strong role in the adoption of the PDP. A very big step was taken, whereby every child and teacher in the school experienced a programme of O&AA, establishing both teacher and curricular change within the school. Structural change was also evident in school systems whereby issues with storage of resources, timetabling and access to facilities were negotiated in order to facilitate change and improve teaching conditions for the teachers. The findings also pointed to aspects of the PDP where further changes needed to be made to include different types of teacher learners, further support for teachers who move class levels, support in planning and organisation of equipment, and technical language. Considering the background of the teachers and their initial lack of content knowledge in the area of O&AA, stage 2 demonstrated that the PDP was effective and teachers gained confidence as their knowledge expanded allowing them to teach a programme of O&AA with minimal support. It also identified that support was necessary to get to this stage and further support was identified by individual teachers in specific areas of content and pedagogical content knowledge. Teachers' and children's perceptions of physical education began to change as the PDP progressed. Teachers recognised child learning in physical education as a result of the PDP and teacher collaboration was identified as a legacy of the PDP.

The findings will be discussed in the next chapter drawing upon the literature on professional development, teacher change and programme evaluation and social constructivist theory to provide a deeper understanding of the process of professional development and the challenges it may face when attempting to facilitate a PDP with teachers in schools.

Chapter Seven: Discussion

The purpose of this study was to describe, analyse and understand teachers' and children's experiences, of a contextualised, whole school professional development programme in primary physical education. In this chapter, the findings relevant to the evaluation of the effectiveness of the physical education professional development programme (PDP) in Outdoor and Adventure Activities (O&AA) and its impact on a school community described in previous chapters are discussed. Findings indicated that that, following analysis of the teachers' and children's experiences, the PDP was effective, with teachers changing their practice in relation to how they taught physical education. Teachers were willing and able to implement a programme of Outdoor and Adventure Activities, for their respective classes, exhibiting different levels of pedagogical content knowledge. The PDP impacted positively on children and their learning including their perceptions of physical education. The elements of the PDP design which contributed to the success of the programme along with those which need to be developed further will be discussed in light of known effective professional development and professional development programme evaluation. Evaluation is a key component of effective professional development and became part of the research framework and professional development programme design. Guskey's (2000) evaluation model, described in the literature review, was selected to guide this study. Each of Guskey's five levels of evaluation was addressed through the data collection methods. The findings will be discussed using the propositional statements as a framework (Table 7.1), keeping in mind how they relate to evaluation model.

Table 7.1 Development of features of effective professional development

Propositional Statements
Human and physical resource provision played a strong role in the adoption of the professional development programme by the teachers
Support by an external expert through modelling, explaining and feedback impacted on teachers teaching
For changes in teaching to happen, organisational changes are necessary
Teachers gained confidence as their knowledge systems expanded
The professional development programme impacted positively on the children and their learning
Communication and collaboration developed during the professional development programme
Teachers' and children's perceptions of physical education began to change during the professional development programme

Human and Physical Resource Provision Played a Strong Role in the Adoption of the Professional Development Programme by the Teachers

Following a needs assessment as described in chapter 4 'Understanding the Case', teachers revealed a complete lack of content knowledge of the outdoor and adventure activities strand. This meant that the PDP had to begin by building content knowledge as teachers require appropriate content knowledge if they are to teach effectively (Borko, 2004; Romar, 1995; Werner & Rink, 1989). Without this basic content knowledge teachers would not be equipped to identify learning intentions, share success criteria, develop questions, provide feedback, differentiate or assess their pupils, all of which are vital in providing a quality physical education experience for the children (Graham, 2008; NCCA, 2010; Pickup & Price, 2007). It became clear that physical resources were necessary to provide concrete organisational steps. This gave teachers confidence and knowledge and slowly they began to adapt as their confidence grew, concurring with the findings of Maldonado (2002) and Garet and colleagues (2001). The resources also helped the teachers overcome the barriers of high workload and lack of knowledge as to what resources to design or produce. This is supported by the work of Duffy (1993) who found that although teachers initially asked for prescriptive lessons, over time they showed progress from modelling these prescribed practices to revising strategies and to inventing new strategies.

The Department of Education and Skills use a 'resource model' through the provision of the PSSI resource materials for physical education, to meet primary school teachers' need for continuing professional development in physical education. This research has demonstrated that even though the teachers had access to the PSSI O&AA lesson plans prior to the PDP, they chose not to teach the strand. They could not interpret the lesson plans nor did they have the practical resources to support the lessons. The danger is that this approach – resource provision – may deskill teachers (Fullan & Hargreaves, 1992; Petrie, 2009) as they may use the resources provided as prescriptive lessons. Murphy (2007), studied teachers following national in-service, and found that while they had gained a basic understanding of the key elements of O&AA, the main obstacle was the creation of resources for implementation within their own school context rather than any difficulty with the implementation of the strand itself. In summary, prescribed practices may provide a starting point for the learning of new knowledge and the development of new ideas for many teachers trying to meet the needs of their pupils. However, lesson plans on their own, especially for O&AA may

not be contextually relevant and if teachers do not have the subject content knowledge, they are unable to understand, implement or adapt the content to their context. Without lesson plan interpretation ideally through modelling in their own schools, the likelihood of teachers changing practice and adopting a new physical education strand, like O&AA is diminished.

The need for an electronic resource, such as web based video tutorials, which would provide a real life reminder of how each of the O&AA activities in their school was organised, was expressed. However, Bransford and colleagues (2005) found that when such resources were shown to teachers, 'many features in the videos … obvious to experts … go unnoticed by novices unless the features are pointed out and discussed' (p. 42). This may be addressed by using the video resources with some level of expert support in a sustained professional development situation, such as a competent teacher within the school leading a discussion on the content prior to the teachers embarking on the strand unit each year. Ensuring lessons, or even aspects of lessons were recorded would add to the expense and time required for the PDP. Provision of such a resource, may undermine teachers' requirement to become self-sufficient and may even negate the need for collegiality and collaboration in the school. Therefore, caution in providing this type of support is warranted as this may not work with teachers who are not familiar with the content or who haven't undertaken stage 1 or 2 of the PDP. Web-based video tutorials also take the form of modelling, however it is assumed that the content is facilitated away from the school context and teachers have to be able to adapt the content to their own environment and so violates the active learning criteria which is a key feature of the PDP for this study. Further research would be required to explore the use and effect of such resources on teachers learning and changes on practice.

Support by an External Expert through Modelling, Explaining and Feedback Impacted on Teachers' Teaching

A variety of learning experiences (Bransford, Derry, Berliner, Hammerness and Beckett, 2005) were provided for the teachers in the school, according to their own needs and requests. Participants' learning is not an all-or-none phenomenon, in that one size does not fit all (Hustler, McNamara, Jarvis, Londra & Campbell, 2003). Adhering to the social constructivist approach, the support provided in this study was given in meaningful contexts in a supportive environment and by taking a learner centred approach the facilitator was able to focus on the teachers' knowledge through feedback

and discussion thus overcoming the notion that constructivism is purely learning through hand-on experiences only. This became obvious as the PDP progressed, with the teachers partaking in the PDP divided over time, by the researcher, into three groups:

i) those requiring maximum support in the form of modelling and continuing to require support in the form of modelling sections of lessons at stage 2 of the PDP

ii) those teachers who required decreasing support following the first modelled lesson and continued to teach at stage 2 with minimal support generally in the form of pre lesson explanations

iii) those teachers who required minimal support and once they had the resources and explanations at stage 1 proceeded to teach themselves at stage 1 and continued to do so through stage 2, with support in the form of affirmation and feedback on their teaching.

Professional development to date, in Ireland, had focussed on explanations and resources given to teachers at workshops (such as those provided through summer courses facilitated by Teacher Education Centres or the INTO), with little support once the workshop concluded. The majority of teachers in the school were in groups i) or ii) requiring much more than what was being provided. This mis-match between teacher need and resource provision by the Department of Education and Skills resulted in not one single teacher having taught a lesson with only the resources provided. All of the teachers required the support of the facilitator to some extent. This is akin to a stages of change model, whereby change for teachers is not 'a one shot knowledge transfer model' (Conway, 2009), but depends on teachers' skills, abilities and interest at any one particular time, and their requirements.

A facilitator on-site, providing a continuum of support, was the catalyst for change in this PDP. Nelson (2008) highlighted the importance of the role of this facilitator,

> targeted support is critical to move teachers past problematic areas; refining ambiguous inquiry questions, developing the trust need to share student work, making sense of that work in relation to their inquiry question and promoting a willingness to wonder and ask critical questions, classroom practices and student learning. (p. 579)

Providing an additional 10 hours professional development per teacher in the area of O&AA, in context and with feedback and resource development left the teachers in a much stronger position to implement change and continue to teach a quality programme of outdoor and adventure activities compared to the national in-service input alone, thus benefiting from external expertise (Cordingley et al., 2003). Only one of the teachers had tried to teach O&AA following national in-service in 2005, yet following completion of a 6-week unit of work in O&AA all but one of these teachers taught a minimum of four lessons at stage 2 of the PDP. Professional development in physical education in now seeing a shift in interest towards professional development that is aligned with classroom conditions, school contexts and teachers' daily experiences (Armour & Duncombe, 2004; Armour & Yelling, 2004b; O' Sullivan & Deglau, 2006; Pope & O' Sullivan, 1998), this PDP provided such support moving towards this more holistic and real approach.

Teachers' willingness to change is a complex process and maybe not always a 'comfortable' one (Day, 1999, p. 4). Bransford and colleagues (2005) point out that anyone learning something new for the first time goes through a period of 'klutziness' (p.58), as they attempt to acquire new skills and knowledge and whether they persist or bail out depends on their own sense of their abilities. A number of teachers, during this period of klutziness at the end of stage 1 and the beginning of stage 2, reported that if the facilitator had not been present they would not have continued to teach O&AA. Although described as pressure from the facilitator to teach, it was seen as positive pressure balanced with support. According to Dewey (1997) it is this state of discomfort that is the hallmark of the educative experience. A balance between pressure and support as a characteristic of professional development was not mentioned by Guskey (2003) in his review of effective characteristics of professional development. However, Guskey (2002b) and Fullan (2001), purport that pressure and support are necessary ingredients of PDP success, particularly among those who are less willing to change (Cordingley et al, 2003; Kabylov, 2006). This research has shown that effective PDP's need to ensure that pressure and support are not only present but combine seamlessly to initiate change in practice.

Given the success of this initial collaboration between the researcher and the study school, the Department of Education and Skills (DES) should consider facilitating partnerships between Colleges of Education and schools with a view to providing a combination of on-site, professional development and coursework for teachers. This

could be done by funding a number of teachers each year to undertake specialist education in physical education, so that they may adopt a leadership role and assist in their school in developing and implementing a school professional development plan for physical education.

For Changes in Teaching to Happen, Organisational Changes are Necessary

The success or otherwise of many professional development programmes has depended on the support provided by the school, and its management (Fullan, 2001; Guskey, 2000; Sparkes, 1996). Physical education is a complex subject comprising of very different strands. Its nature and purpose are constantly being discussed in many fora and can be linked with changes in society. The teachers in this study had experienced national in-service in all aspects of the curriculum over six years, fitting in with the current national reform agenda (Sugrue et al., 2001). National in-service focussed on breadth within subjects and these teachers were under immense pressure trying to consolidate on one subject, build on another and have further professional development on a third all while teaching and dealing with many other school related issues. A challenge for the primary school sector is how to deal with multiple PDPs simultaneously (Timperley et al., 2007; Wylie, 2007). On completion of this study, this concern of teachers moving to the next stage of curricular reform assuming that their physical education professional development was complete, a process they had become accustomed to with national in-service, was present. Teachers, following stage 2 of the PDP, recognised their pedagogical content knowledge deficiencies in the other strand areas of physical education and requested and actively pursued further support in other strand areas of the physical education curriculum, negating this concern. It should be noted that due to the short term nature of the PDP teachers may return to old practices when they move to another strand, which has not been covered by the PDP, as was reported by Tannehill and colleagues (2007) in their research.

Similar to Betchel and O' Sullivan's (2006) findings the Principal was key to the change process. The findings in this study suggest that an important influence on teachers' engagement in the PDP was the school's commitment to this initiative and the driving force of the Principal. This was in sharp contrast to international findings where low levels of principal support for staff professional development were recorded (Barroso et al., 2005; Hardman & Marshall, 2009; Kirk, 2006).

The literature supports contextualised professional development for schools, but there is little work published on variation within a school or contextualisation in classes, with teachers and children or even where or when lessons are scheduled. All of these issues can impact a PDP. Throughout the PDP process organisational changes had to be made and these were defining factors in the programme's success. These changes included simple modifications to i) how the equipment was accessed, ii) where it was stored, and iii) how and when physical education classes were timetabled. Each of these organisational changes had a positive effect on how physical education was taught to the children. Yet these structural changes are not addressed in many, if any, professional development programmes or workshops. In many of the reviews on effective professional development there are references to organisational support and change as being critical to the success of professional development interventions, however what is meant by organisational change is unclear. As can be seen from this study organisational change was very practical and more than just Principal support. Organisational changes, which were not addressed during the PDP, caused barriers to effective teaching, for example, intrusions into teachers' lessons by parents, use of equipment and facilities by external providers and intrusions from other activities which take over the indoor facilities which were required for physical education lessons. Change and organisational change needs to be monitored and protected.

Organisational change is complex, though necessary, for teacher change to happen. In order for it to be effective future professional development models should examine organisational change from the perspective of physical change (resources, equipment and facilities) and policy change (time-tabling, school ethos, physical education programme planning, and teacher induction). To implement any necessary organisational change requires a collective participation (Garet et al, 2001) of Principal, staff, parents, children and the school's Board of Management.

Teachers Gained Confidence as their Knowledge Systems Expanded

Increase in levels of knowledge and skill use during the study and immediately following completion of the PDP was evidenced. However, this development focused on outdoor and adventure activities and considered depth as opposed to breadth. The strength is that it allowed the teachers 'to refine their delivery of one curriculum (initiative) before (moving) onto to a new curricular approach' (O' Sullivan & Deglau, 2006, p. 442). The outcome was that teachers' confidence developed especially in the

areas related to O&AA, such as orienteering, challenges and walking activities. This is important to note in the context of theorists such as Bandura, who argue that positive self-efficacy beliefs are an important pre-requisite for change (Martin, McCaughtry, Hodges Kulinna & Cothran, 2007). As a result of the PDP teachers showed a greater commitment to physical education and their own professional statement in this subject (Keay & Spence, 2010; Kennedy, 2008b). This study showed that this type of PDP can initiate change in knowledge and change in practice. However, it also found that a successful PDP involves learning, and this is an on-going process, one which requires sustainability. Supporting other researchers in the area, this need for support, lessened as teachers become more competent and confident and responsible for their own learning (Armour, 2006; Armour, 2009; Betchel & O'Sullivan, 2006; Murphy, 2007; Petrie, 2009). However, adoption and full completion of all learning outcomes at stage 2 was varied. Rodgers' (1995) description of adoption of a new practice therefore was partial with some teachers abandoning certain learning intentions from lessons. This was particularly evident among the teachers of senior classes as they 'dropped' compass work and map walking due to the negative feedback they received from the children and the inactivity of the lessons. This confirms the delicate nature of change, emphasising Guskey's call for reinforcement, but stressing the importance of knowing where this reinforcement of teachers' positive changes in teaching and classroom practices is coming from and what type of feedback it is. This finding demonstrates that the early change stage in a teacher can be persuaded in either direction – adoption or avoidance – of subject matter and learning intentions based on feedback and reinforcement. According to Guskey (2000),

> practices that are new and unfamiliar are more likely to be accepted and retained when they are perceived as increasing one's competence and effectiveness…new practices are likely to be abandoned, however, in the absence of any evidence of their positive effects – hence specific procedures to provide feedback on results are essential to the success of any professional development endeavour (p. 141).

As teachers' content knowledge increase was evidenced so too was their pedagogical content knowledge skills in relation to O&AA, with teachers adapting content to suit their context and their class and also grouping children to meet the children's needs. The contextualised and personalised nature of the teachers' learning supported Cochran and colleagues (1993) research which states that pedagogical content knowing is best learned while working directly with pupils in the classroom because

'live teaching permits the direct interaction that shows ideas in use and opens the way to negotiating paths of understanding' (p. 267). Teachers were moving from behaviourist teaching tendencies to a more constructivist style of teaching (Kirk & Macdonald, 1998). Instruction, feedback and teaching methodologies were also expanded from pre-PDP. Although there may have been some hesitancy due to lack of experience of the strand, at least teachers saw and wanted to react to problems they saw occurring.

Any PDP must consider factors beyond its control, as a reason for non-adoption of the programme rather than it solely being their experience of the PDP. Multiple factors affect teacher's behaviours (Guskey, 2000) and 'not all teachers respond to an innovation, commit to collaboration, or construe the purposes of education, for instance, in quite the same way' (Hargreaves, 1995, p. 11). Changes in the personal life of one teacher in the study impacted on her practice following the PDP. It was encouraging to note that this teacher did ensure that the children in her class experienced the O&AA unit by having another teacher take them for physical education, thus supporting her value of O&AA from her experience of stage 1. A late-career teacher (teaching over 30 years) (Templin, Hemphill, Richards & Haag, 2010) felt the PDP did not influence a major change in his practice, even while acknowledging what he learned through participation in the PDP. Any PDP must consider the factors beyond their control may lead to non-adoption of the programme rather than it being solely their experience of the PDP. Changing teaching methodologies can be threatening for late career teachers who are often more comfortable with the traditional methods of pedagogy they have become accustomed to (Guskey, 2002b). More subtle pressure (Kabylov, 2006) on the part of the facilitator may have encouraged this teacher to change and apply the new knowledge mediated as part of the PDP.

The aim of the PDP was that the teachers would teach lessons similar to those provided as resources and subsequently modelled, adapting them when and where necessary. The idea that the teachers perceived an increase in their confidence and competence after the first stage of the PDP (indicated by teachers' willingness to teach O&AA again) was apparent but they still required support. This suggests that there was a scale of motivation to change practice, with some teachers very motivated and self - determined to change and others less so. Facilitation of discussion among teachers, who confront similar problems in embracing a PDP fully, can encourage change by allowing opportunities for teachers to share solutions to problems and also to reinforce that these changes will take time and with time improvement is possible (Garet et al., 2001).

The Professional Development Programme Impacted Positively on the Children and their Learning

The ultimate aim of any programme of professional development should be to improve student learning. Much of the literature focuses on the programme of professional development itself or on the teachers it is aimed at, however, in recent years there has been a shift towards providing evidence of impact on student learning though as yet there is little research which links learning in physical education and teacher professional development (O' Sullivan & Deglau, 2006; Tsangaridou, 2006). 'It is foolhardy to either expect or focus on measuring student learning when teachers have just begun to learn and experiment with new ideas and strategies' (Loucks-Horsley, Hewson, Love & Stiles, 1998, p. 222) that was the focus of this study as revealed by the initial needs assessment. In the absence of standardised testing or outcome measures for physical education or specifically in O&AA, study measurement of learning was not carried out. Future research needs to address how we can measure children's learning objectively. Through the focus group interviews children reported on their learning and through researcher observations throughout the unit of O&AA, it could be determined that teaching by the teacher was indeed effective. Inclusion of the children's voice in the research design acknowledged and involved children not only in the evaluation of the PDP but also in the 'business of schooling' (Sims, 2006, p. 4).

Children were able to recount what they had learned and the fact that the physical education lessons they experienced as part of the PDP were different, compared to other physical education lessons, where they took part for fun, competition and recreational purposes. Children's language of physical education moved from a narrow recreational focus to include O&AA terms such as 'orienteering'. As a result of the PDP there was a change in children's attitude towards physical education, with children enjoying O&AA lessons and the new teaching styles being employed by the teachers. Problem solving and discovery learning gave the children freedom in lessons, compared to the behaviourist style they were used to prior to the PDP, and this in turn encouraged the children to become responsible for their own learning. The children's physical education experience throughout the PDP were positively impacted and this could in turn lead to increased learning. Other benefits of the PDP such as inclusion, whereby all children were involved in O&AA lessons compared to limited participation by girls and some boys in physical education prior to the PDP, were highlighted by

teachers and children. It was beyond the scope of this study to evaluate the effect of the PDP on other aspects of children's learning, although research suggests that participation in physical activity may improve academic performance (Sallis, McKenzie, Kolody, Lewis, Marshall & Rosengard, 1999; van der Mars, 2006), and may contribute to children's alertness and concentration with benefits for learning (Bailey, Armour, Kirk, Pickup & Sandford, 2009).

Future PDP design needs to incorporate discussions with teachers recognising the possibilities and limitations of child learning within O&AA, due to the short duration of teaching and learning time within a school's physical education programme (van der Mars, 2006). The child's voice in any PDP design and evaluation should be considered and has much to offer as has been shown in this study. The impact of the PDP on the children's learning was a critical first step on the teachers' road to change in practice and made the PDP count (Guskey, 2000) for the teachers.

Communication and Collaboration Developed during the Professional Development Programme

In order to help teachers change their practice we must help them expand their knowledge systems (Borko & Putman, 1995). Literature states that teachers require time and opportunities to have in-depth discussions about content, student conceptions and pedagogy (O' Sullivan & Deglau, 2006). This study corroborates these findings, as teachers pointed to the research focus groups as the first opportunity that they had ever had to communicate on many levels about physical education. Prior to the PDP the teacher culture in the school was one of 'insulation and isolation' (Teaching Council, 2010a, p. 26) and a reluctance to share their experience or teaching with colleagues (Hogan et al., 2007) prevailed. As teachers in the study school did not possess adequate content or pedagogical content knowledge about Outdoor and Adventure Activities to share with each other prior to the PDP, the development of a community of practice (Lave and Wenger, 1991) within the school was not pursued at the time of the study. However, the PDP, by providing active learning experiences followed by structured opportunities to discuss what was learned, initially with the researcher/facilitator during the modelled lessons and subsequently during interviews, was the seed from which collegiality and eventually collaboration grew. According to Patton and colleagues (2011) '*dialog within a community engenders further thinking'* (p. 8). The teachers valued this time and it had an impact not just on their teaching of physical education but

on other subject areas too, allowing them to develop as teachers. The learning that happened as a result of the exposure to this PDP reinforces the findings of Pedder and colleagues (2008) whereby teachers were found to place most value on professional development that involved, 'experimenting with classroom practices, *working collaboratively* [author emphasis], adapting approaches in light of pupil/peer feedback and self-evaluation' (p. 13). The consensus statement prepared by Armour for Association Internationale des Ecoles Superieures d'Education Physique (AIESEP) (2009) points to 'shared commitment and collaboration between education stakeholders' (p. 4) for meaningful professional development.

The teachers in this school wanted to improve and this 'stem[ed] from the naturally occurring relationships among dedicated professionals who are constantly seeking and assessing potentially better practices' (Hogan et al., 2007, p. 121) and was facilitated by inclusion of 'collective participation', one of the key features of the PDP. The research methodology employed as part of the PDP evaluation provided further impetus for communication. As teachers were encouraged to communicate and share experiences in the focus groups this led to collegiality and ultimately collaboration in O&AA in physical education. This culture then spread to other subject areas and according to the Principal this was a powerful legacy of the PDP, this is similar to the findings of Parker and colleagues (2010) who found in their study that the relationships that were built between teachers when collaborating endured beyond the timescale of the PDP.

According to Little and colleagues (1987) teachers who collaborate together take more risks. Teaching outdoor and adventure activities for the first time posed a huge risk for many of the teachers. During the focus groups teachers were able to admit their deficiencies in their teaching of O&AA without being considered deficient teachers, as a whole school approach was taken and as only one teacher had taught O&AA previously, they were all equal. Armour and Makopoulou (2006) point to the fact that teachers learn when they are more actively involved in thinking and talking about their learning during any professional development. A limitation of the PDP was that it did not consider the processes to encourage, extend and structure professional dialogue in a formal way through a community of practice (Cordingley et al., 2003; Maldonado, 2002), nor did it emphasis peer support in its initial design. However, due to the whole school approach and collective participation, the evaluative methodologies employed, teachers began to work together and provide each other with support as they

undertook teaching a new aspect of the Physical Education Curriculum (Government of Ireland, 1999b). Utilising Wenger's (1997), three elements of a community of practice (domain, community and practice), it could be said that communities of practice were formed through the process of the PDP facilitation. The teachers at each class level i) formed an identity defined by a shared interest in improving teaching practice (domain), ii) they collectively pursued their interest in improving teaching and by so doing engaged in social interaction (community) and iii) they shared resources and practice (practice). However, by the end of the PDP, collaboration was still at the 'planning and talking about teaching' stage (Day & Sachs, 2004) and not at the stage of 'examining practice'. The collaboration involving teaching and sharing knowledge was mainly at class level and not at whole school level. Nonetheless, research suggests that collaboration initiated and maintained by the teachers can lead to stronger collaboration (Armour & Makopoulou, 2006; Duncombe, 2005). Due to the constructivist approach (Kirk and Macdonald, 1998) taken by the PDP, and the emphasis on situated learning meaningful and purposeful groups began working together. These groups which could be called communities of practice contained a central feature which could offer direction for future professional development in physical education in the school– trust and respect. This trust and respect can lead to a safe and supportive environment where teachers are more likely to discuss their teaching and attempt new practices which may deepen their understanding and offer new experiences to their students (Parker et al., 2010; Whitcomb et al., 2009).

For communities of practice to flourish in schools, centred on children's learning in physical education, they will need to be facilitated and formalised, possibly by the providers of physical education professional development (Duncombe, 2005). Stoll and colleagues (2003) contend that school principals have a role to play in developing teachers' capacity through developing effective collaborative conditions, which would possibly require organisational change within the school. Future PDPs should incorporate, more formally, opportunities for communities of practice to develop, by providing i) opportunities for teachers to observe each other teaching, ii) opportunities for teachers to meet and discuss practice, and iii) opportunities to receive input from external primary physical education specialists.

Teachers' and Children's Perceptions of Physical Education Began to Change during the Professional Development Programme

The physical education culture in the study school was one of games and therefore physical education was defined as such (Kirk, 2010). Over the course of the PDP, teachers moved from this concept of physical education as games skills and teamwork to a broader conceptualisation of physical education. However, achieving change in a school culture is extremely difficult (Grimmett & Crehan, 1992). It is only by being onsite and experiencing the school culture that a PDP facilitator can understand the culture and suggest ways and means of eliciting cultural change.

Teachers were aware of the importance of a broad and balanced programme, providing children a variety of activities and ensuring inclusiveness but in practice this was difficult. Teachers suggested that changes should begin with the younger classes and move through the school. The problem for the younger classes was that they continued to see that physical education in the senior classes was games and many of them longed to be in senior school where they could take part in these games, hence the games culture existed with these young children already (Fahey et al., 2005). The older children pressured teachers into providing games, which were not games lessons per se but rather recreational games lessons. Until these teachers are clear about the educational purpose of physical education, long term changes in practice may be slow as changes in schools depend on what the teachers think (Fullan, 2001). Although in the short term, content knowledge about what and how to teach is vital, theoretical knowledge of physical education is also necessary to bring about school and lasting classroom change. Ideally, a PDP should address these aspects concurrently, particularly when dealing with a new strand of physical education. This twinned approach would make for a stronger programme.

Final Thoughts

The modelled lessons and onsite support individualised to each teacher's needs showed teachers how (pedagogical content knowledge) the resources (content knowledge) could be adapted for the children's learning needs. The fact that the PDP used the teacher's own class in their own school was a very important element in the design of the PDP and again showed its relevance to children's learning. According to Bransford and colleagues (2005), 'learning in the ways they are expected to teach may be the most powerful form of teacher education' (p. 76). They go on to say that most

people teach how they are taught, therefore, it was important when modelling to ensure best practice was modelled at all times by the facilitator.

Although a direct teaching methodology was employed on occasion, by the facilitator, it was necessary initially to ensure teachers became familiar with content and pedagogical content knowledge. Cognitive apprenticeship ensured that the modelling would not become prescriptive, as the teaching strategies employed by the facilitator were explained and discussed with the teachers. Research on pedagogical content knowledge in the subject of physical education exists (Rovegno, 1994) but no such research specifically on O&AA or in the context of teachers experiencing other PDPs in a variety of subjects simultaneously, which was the case in the study school, was found. To facilitate this labour and time intensive constructivist approach to learning through this PDP could prove difficult in a number of schools due to their very nature, with school closures, absent teachers, class trips, and theme days in the school hall and so on. This is particularly relevant to professional development for physical education where the subject may be dependent on a school hall or the weather, if outside, for provision of physical education. Other subjects at least take place in the teacher's classroom. The findings in this study outline the extensive opportunities that teachers had to explore the physical education subject content of outdoor and adventure activities, however they also show that it is complex. Teachers need more opportunities to engage with subject content and to develop understanding of the nature and content of physical education (Borko & Putman, 1996). Teachers also need opportunities to communicate and collaborate through communities of practice to enable sustained support. Support was beginning to be given to teachers by teachers as knowledge and understanding were extended. Further support was identified by teachers if the programme or their teaching context was to change or develop beyond that facilitated, supporting the findings of Armour and Duncombe (2004), and O' Sullivan and Deglau (2006) in their studies where effective professional development requires on-going support to extend practice.

A Continuous Model of Teacher Change

As outlined in chapter 2, models of teacher change show links between change in teacher beliefs/attitudes, changes in student learning and change in practice (Desimone, 2009; Guskey, 2002b; Huberman, 1995). Although the models identify similar aspects of change, the process through which change happens is described differently - a linear process (Guskey, 2002b), a cyclical process (Huberman, 1995) and

an inter-related process (Desimone, 2009). Change may occur in many ways, it is a complex process involving not just one area of change but a combination of all three (Sparkes, 1990). Hence based on the findings of this study, a continuous model of change is proposed (Figure 7.1). This model shows that change was multi-directional underpinned continuously by the PDP. The key features of effective professional development as found in this study are identified in the model and aligned with the change areas.

In this study, the teachers' experience of a contextualised programme of professional development which led to their enhanced knowledge and increased confidence aligned with their observation of its impact on children's learning (change in learning) caused them to re-evaluate their understanding of physical education (change in beliefs). This re-evaluation along with the facilitator providing support and positive pressure through the programme (PDP) was the beginning of the teachers' acceptance of the PDP resulting in a change in classroom practice (change in practice). The experiences the teachers and children engaged in as the PDP developed, reinforced and continued the change process. Teachers began to change classroom practices (planning and teaching O&AA) and with necessary organisational changes put in place (e.g. timetables, equipment management and organisation) they became responsible for further changes in children's perceived learning. Reflection through the focus group interviews had a positive effect on belief change. This led to further change in the beliefs and attitudes of the teachers, as they developed confidence and competence. As teachers' content and pedagogical content knowledge increased teachers began to seek out further professional development, thus continuing the process. In review of the literature following completion of this study, it was noted that Opfer and colleagues (2011) proposed that teacher change results from a complex process involving beliefs, motivations and practices and the way these interact with the context and structures in the school than solely through an accumulation of knowledge and skills gained through participating in a learning activity. This proposal (Opfer et al., 2011) supports the findings and proposed model of change resulting from this case study illustrated below. Finally, the only way to deal with new practices is to continue to learn and effective professional development is a key factor in teachers' learning.

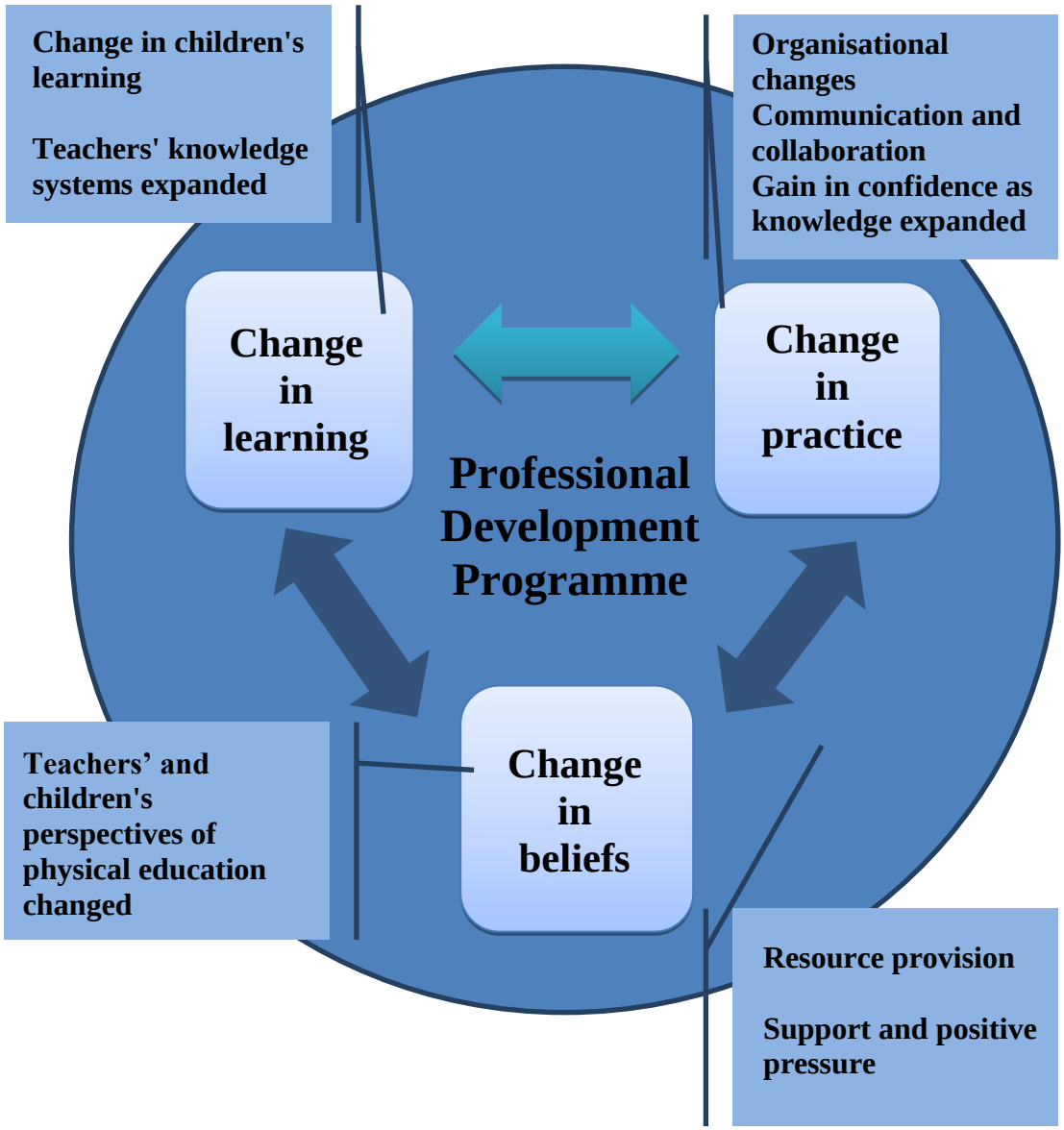

Figure 7.1 A continuous model of teacher change

Chapter 8: Conclusions, Implications and Future Research

This chapter starts with a brief summary of the study. The conclusions of the study are outlined, followed by discussion about how the findings relate to the broader issue of teaching physical education in Ireland. Finally the implications of these and recommendations for future research are considered.

The Study

This research study was as a result of an increasing emphasis by the government on the need for professional development to support the implementation of the 1999 revised primary curriculum. This encouraged a school staff, under the leadership of its Principal to seek out additional professional development in the area of physical education. Models of professional development have been shown to be effective in bringing about change in teachers' pedagogical content knowledge which can in turn enhance children's learning (Faucette et al., 2002; Keay & Spence, 2010; Petrie, Jones & McKim, 2007). However, there is a dearth of research examining the process of professional development programmes in primary physical education. The purpose of this research was to describe, analyse and understand teachers' and children's experiences of a contextualised, whole school professional development programme in primary physical education. Its specific objectives were to:

- Identify the practices, perspectives and needs of a group of primary school teachers in a main-stream, mixed, urban school in relation to physical education.
- Design a professional development programme in Outdoor and Adventure Activities, one of the six strands of the physical education programme.
- Evaluate the process and impact of the professional development implementation.
- Outline the implications and make recommendations for future programmes of professional development.

The literature, as well as the researcher's own experience, informed and guided the research design. Working from an interpretive perspective, influenced by social

constructivist theory, a case study methodology was chosen. The professional development programme planning and design was based on programme modelling, constructivist learning theory and the theory of cognitive apprenticeship. Throughout the study various methods of data collection were used to ensure all aspects of the PDP process and impact were evaluated (Caffarella, 2002; Craft, 2000; Guskey, 2000). The researcher in this study was also the facilitator of the PDP, which allowed for a richer exploration of the process as well as evaluating the impact of the programme.

Conclusions

This research highlighted how a professional development programme, through personalised, sustained, contextualised support, impacted on teachers learning, which helped them feel confident and motivated them to teach O&AA. The findings explored the impact of the PDP on teachers' content and pedagogical content knowledge and on children's learning. The complexity of designing a flexible and contextualised PDP of this nature was also discussed. Although there were many positive impacts, the PDP was not conclusive and future research needs were identified and discussed. Six conclusions were arrived at following this study. These are: i) understand the school context, ii) the importance of resource provision as a starting point for teachers learning, iii) the individualised nature of support required by teachers, iv) subject knowledge as a precursor to pedagogical content knowledge v) the teacher as collaborator and vi) the value of physical education in schools.

Understanding the school context. In Ireland, many current primary school teachers have experienced a lack of appropriate physical education exposure and professional development throughout the education learning continuum. This spans from when they were pupils themselves (learning by observation), though Initial Teacher Education and into career lifelong learning. In the context of the study school, this lack of exposure and professional development in physical education materialised as the pupils receiving an overexposure to the 'games' strand, rather than the full physical education curriculum. Hence, the PDP focussed its attention on one strand – outdoor and adventure activities - rather than the whole physical education curriculum. This focus on depth, rather than breath, gave teachers the time to cover content, pedagogical content and to understand and apply what the PDP was covering. It was different to their normal exposure to physical education professional development, but ultimately it led to a more successful outcome for these teachers, with the majority

actually changing their teaching practice. In future, PDPs must consider the school context, understand what teachers have been exposed to previously, know what their current practices are and from this knowledge develop a realistic programme.

Resource Provision. The teachers felt the PDP was effective because resources were provided, supporting the work of Faucette and colleagues (2002) and Keay and Spence (2010). The teachers found the lessons, schemes, resources and materials invaluable in supporting them to teach O&AA and went so far as to say they would appreciate similar support in the other strand areas. The provision of resources allowed teachers to concentrate on teaching the strand and the challenge of preparing the resources themselves with lack of knowledge and the pressures of increasing workloads was removed. This was not surprising considering that the Irish generalist classroom teacher teaches physical education as one of eleven subjects. The findings showed that teachers were encouraged and more confident to teach when they had the resources. Once teachers were shown and supported in using the resources they began to adapt and change the activities to suit their requirements and children's learning. The resources provided here allowed for context and were mediated according to the teachers' learning needs therefore deskilling was avoided. An additional resource in the form of a DVD was suggested to support teachers as a reminder of activities from year to year. The storage and use of shared resources by a school staff was also found to be important. Future professional development programme design must consider resource provision as without resources the likelihood of teachers considering teaching specific physical education strands will be reduced, but also sharing and storage of these resources by the whole school is necessary. This will not only ensure that resources are used, but it will help foster collaboration in the teaching of these new areas.

Support. Teachers were able to observe lessons modelled with their class in their school, making the support relevant to them. Support was always available, lessons were inclusive and child learning was observed. The provision of the support by an external 'expert' was an important influence in the success of the programme.

Another conclusion is that the teachers required further opportunities to learn more about O&AA and especially content knowledge relating to the technical aspects of this strand. Teachers also need to be provided with opportunities to develop their content knowledge, and pedagogical content knowledge in the remaining strands of the physical education curriculum. In other words, professional development must be

sustained even if support is of a much lesser intensity. As can be seen by the changes in the knowledge and teaching practices of the teachers in this study, a ten hour PDP is necessary but not sufficient to allow teachers to develop and use this knowledge in more flexible ways. PDPs need to be funded to provide teachers with ongoing learning opportunities in physical education.

Knowledge. Teachers' knowledge and education in the area of physical education was limited. Enabling teachers, through the support provided as part of the PDP, to teach a new area as much as possible on their own, had a positive effect on their content knowledge and confidence which impacted positively on their pedagogical content knowledge. The findings suggest that initially addressing teachers' content knowledge is vital prior to attempting to enhance their pedagogical content knowledge as part of a PDP. As teachers gained content knowledge and observed it applied in their teaching environment they became more willing to teach and through this experience they began to challenge and adapt lesson content according to their and their children's needs. PDPs need to consider small steps in teacher change initially, beginning by improving content knowledge is vital, but this must be supported by showing how this new knowledge is applied in a relevant teaching context.

Collaboration. Although collaborative learning had been identified as a component of effective professional development it was not a key consideration in the design of the PDP. In order to collaborate, research demands a certain level of content and pedagogical content knowledge from the teachers (Armour & Yelling, 2003; Duncombe, 2005; Garet et al., 2001), therefore, it was exciting to see that teachers initiated conversations around physical education, prompted by the focus group interviews. This communication led to collegiality and collaboration enabled by the teachers' content knowledge gain and sense of collegiality when faced with the challenge of teaching a new and complex strand of the physical education curriculum. It may have initially been at a superficial level in planning and organising for physical education but according to the teachers and the Principal, strategies that started in physical education were being used in other areas of planning in the school.

The Value of Physical Education. Teachers were found to teach games orientated programmes with a focus on social development and recreation rather than education. This was seen to come from the school community's understanding of physical education based on a physical culture of health and sport predominantly. It

was essential, in order to provide a basis for the development of a school appropriate, teacher needs driven, professional development programme, for the researcher to have time to observe and understand this issue in physical education. Consequently, the PDP focused on teaching the teachers new knowledge in O&AA but underestimated the need to broaden this knowledge to the entire concept of physical education. Details of what constitutes physical education according to the curriculum, and what is a quality programme of quality physical education needs to be more explicit for teachers. Teachers' and children's conceptualisation of physical education undertook a minor transformation during the PDP, but there is still much work to be done on teachers' understanding of physical education, the school's overall physical education programme and physical education ethos. Having an understanding of the subject as well as having a positive attitude to the teaching of physical education would appear to be a significant starting point in approaching the teaching of physical education with confidence and towards teaching quality programmes of physical education.

Implications

The evidence informed principles for effective physical education professional development emerging from this study are as follows;

Professional development programmes:

- Promote the importance of quality physical education provision and encourage teachers to view their own professional development as a means to achieving quality physical education for the children they teach.
- Are contextualised and take place in school contexts, rather than teachers role-playing as children 'off site' for the purposes of professional development.
- Assess the necessity for contextual/structural changes prior to any PDP to ensure the success of the programme.
- Take a whole school approach, where there is a driving leader/Principal, creating a supportive environment and a shared vision.
- Involve teachers at all stages of the programme in order for them to become responsible for their own learning. This gives them a voice, their natural right in their own class, where they are best positioned to decide what is appropriate for themselves and their children.

- Are individualised to each learner's needs and engage learners with the key skills and processes, ways of thinking and practicing relative to the content being mediated.
- Consider the provision of appropriate resources that support teacher learning and enhance content knowledge.
- Provide flexible support to scaffold teachers' learning so that when these supports are removed teachers can operate on their own.
- Encourage and facilitate opportunities for teachers to get together during the school day to prompt communication and collaboration and to foster a community of learning.
- Consider the new model of teacher change due to effective professional development outlined at the conclusion of chapter seven

Limitations

This programme of professional development took place in the real world in the context of an urban primary school in Ireland. In such circumstances experimental conditions are almost impossible to meet and therefore evaluating the relationship between the professional development programme and the teachers' and children's learning was very complex. It was also difficult to isolate cause and effect as this school was involved in other programmes of professional development during this study. These other programmes were part of the national roll-out of in-service of the 1999 Curriculum in history, geography and drama.

The professional development facilitator was also the evaluator of the effectiveness of the PDP. While this has its limitations, for example, the potential of reporting bias, or teachers being subject to social desirability bias, the extension of the role of facilitator to evaluator provided a unique and valuable opportunity to i) witness teaching and learning first hand, and ii) modify the PDP, due to the changing needs of the teachers involved overtime. The process of data collection, analysis and write up had to be systematic, thoroughly reported and open to scrutiny (validated through peer review and triangulation) to minimise this potential for bias. This also ensured that the facilitator/researcher was informed about the PDP as it progressed and from analysing the results make any necessary changes to the PDP based on a richer understanding of the results. It also allowed the facilitator become more familiar with PSP design and will assist in the design of any follow-up or future PDP interventions. An external

evaluator usually evaluates outcomes and would not be familiar with the teachers, children or school context which could lead to a lack of in-depth understanding of the particular case.

The uniqueness of this study school context is a critical factor and what works in this context may not work in another context. Therefore generalisability of this work is limited. Teaching and learning is also complex and takes place in a variety of contexts within the same school. Therefore the best that can be achieved is to learn from the various programmes of professional development and try to devise the 'optimal mix' (Guskey, 1994; 2000) for the programme of professional development to suit the context. It is also necessary to be aware that the optimal mix requires flexibility as change occurs, as what works today may be different to what works next month, even within the same school as was experienced in this study.

In spite of the limitations of the study, the research has successfully established the effectiveness of a programme of professional development aimed at improving teachers teaching of O&AA. The findings imply that:

- Teachers can teach a programme of O&AA which results in pupils' learning following the provision of resources and external individualised support.
- The teachers' voice is vital in any programme of professional development; this will inform planning and ensure teachers' needs are met.
- Teachers and children's conceptualization of physical education can be changed as a result of professional development.
- Teachers require dedicated time and quality professional development to support them in their daily work.

How much has the research moved along professional discussion?

Similar to their counterparts in New Zealand (Morgan & Bourke, 2007; Morgan & Hansen, 2008; Petrie et al., 2007; Petrie, 2009) and the United Kingdom (Duncombe, 2005; Keay, 2010; Keay & Spence, 2010) Irish primary generalist teachers lack subject content knowledge and therefore the confidence and competence to teach quality programmes of physical education. Generalist teachers are battling with a number of

other professional development initiatives primarily in the areas of numeracy and literacy which are currently undergoing international review and reform, requiring further teacher change. Generalist teachers work in isolation and opportunities for collaboration are diminished as a result.

The current study revealed that where a whole school approach is taken, teachers with a shared vision can collaborate and a sense of collegiality leading to a community of practice may be possible. By better understanding the duration and types of support that make a difference for teachers, teacher development facilitators can create opportunities that will maximise teachers' chances for becoming accomplished teachers of physical education.

No studies have examined programmes of professional development concerning outdoor and adventure activities in primary education. This study is important as it explored professional development in O&AA in a primary context. It also revealed that explicitly addressing O&AA as part of the physical education curriculum increases primary school children's interest in physical education and has shown that physical education is not just for the 'games player'.

The findings also show that teaching and learning in O&AA has become an important part of the planning and programming in this school.

How it impacted on my practice

This research necessitated spending a year overall in a primary school observing and developing an evidence base for future work with pre-service and in-service primary school teachers. It highlighted the complex world in which primary generalist teachers work and also the complexities of professional development provision for these teachers experienced beyond physical education. This experience and the many related experiences that this study exposed to me, has impacted on my professional development and provided examples and evidence which I can draw from with the students who I teach. This research has caused me to question how I design and deliver pre-service and in-service courses to ensure that the needs of students are met, contextualised in the demanding structures within which they will, and do, teach. It is important that pre-service teachers have an opportunity to gain content knowledge but how this content knowledge can be mediated in order for teachers to be able to adapt and utilise it, in the multiple school settings apparent in the Irish primary school system,

is challenging. I sometimes question how much of what is covered in courses at undergraduate level is absorbed by students as they too battle with increasing demands of coursework, exposure to many new subjects, methodologies and even the demands of living away from home. Due to this research and the many other pieces of research that informed this study my practice with pre-service students has and continues to change. I ensure that instead of students playing the child role and me the teacher role in the practical elements of the course, that students have an opportunity to experience both roles and that each session ends with a reflection on the content or a discussion as to how the content covered may be utilised, adapted and assessed within a lesson, so that they aware of some of the complexities which may face them outside the 'ideal world' of the college gym. I try to encourage students to reflect on what they have experienced in the session and provide video clips of children and whole classes learning in physical education to re-enforce these messages and their learning. These video clips have been an invaluable addition to the programmes and give students a better insight into what it might be like to implement what they have just experienced in their class, in a school context.

Suggestions for Future Research

- Further investigation to determine the level of on-going support required by these teachers in order to provide quality programmes of outdoor and adventure activities is required to consolidate the professional development provision in this area.
- A follow-up study of the teachers who partook in the PDP to determine if their provision of O&AA remained constant or improved since the PDP and if there were any further impacts long-term on their teaching would be informative.
- As O&AA is a relatively new area in Irish physical education it would be interesting to explore the level of support required by teachers to implement a quality programme of any one or all of the strands of the Physical Education Curriculum.
- The study indicated that learning as a key component in physical education lessons as opposed to recreation/free play facilitated inclusion and enjoyment for the children. A study that explored whether sustained exposure to quality teaching and learning and children's enjoyment in

physical education in all strand areas over a number of years could continue to keep children interested in physical education through their secondary education and onwards to enjoy a healthy lifestyle into adult life.

- Further investigation should focus on a wider sample of teachers to establish if the PDP can lead to further improvements in the provision of quality physical education and impact on children's learning.
- This study highlighted the differences that exist amongst teachers within one school, meeting these individual needs merits more investigation. In line with the physical education curriculum which encourages teachers to ensure opportunities exist for all children to achieve within a class and to differentiate for children, professional development programmes for these teachers should foster the same considerations.
- A study on facilitators of professional development and the impact of providing individualised, contextualised programmes of professional development whereby the facilitators are unfamiliar with the context they might be working in, merits investigation.
- Further work is necessary to establish the professional development requirements of teachers at various stages of their career and in different contexts.
- The support that teachers showed to each other throughout their teaching of the strand and how this impacted on other areas of school planning merits further investigation.
- As the primary school teacher in the Irish context is a generalist teacher other models of professional development needs to be investigated to try to improve teachers' teaching and children's learning across subjects rather than through subjects to ensure maximum use of teachers' precious time.

This research study was based on a practical and theory based programme of professional development, informed by the literature on professional development, teacher knowledge and teacher change and the design of programmes of professional development to impact a whole school staff to provide a quality programme of outdoor and adventure activities. The outcome of the facilitation of the programme has provided evidence that teachers were teaching a quality programme of outdoor and adventure

activities thus supporting the theory of teacher change. It has also proven that a contextualised, needs based programme can be successful in achieving its aims.

The study can contribute to the growing body of research on professional development for primary teachers in physical education with particular reference to outdoor and adventure activities and the facilitation and design of such a programme. As the child is central to all teaching and learning it is imperative that these recommendations be addressed by all those concerned with the promotion of physical education at all levels, both educational and political. Professional development opportunities must be foremost in policy makers' minds in ensuring that children's learning experiences are addressed at every decision making level so that they may become a reality.

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Appendices

NOTE: All appendices are accessible on the accompanying CD

Appendix A Refereed journal articles

Appendix B Refereed abstracts

Appendix C Reviewed conference proceedings

Appendix D Teachers' questionnaire

Appendix E Children's questionnaire

Appendix F Principal interview schedule

Appendix G
- **i.** Teacher interview schedule - November 2006
- **ii.** Teacher interview schedule - March 2007
- **iii.** Teacher interview schedule - October 2007
- **iv.** Teacher interview schedule - November 2007

Appendix H
- **i.** Children interview schedule - November 2006
- **ii.** Children interview schedule - March 2007
- **iii.** Children interview schedule - November 2007

Appendix I Observation schedule

Appendix J Evaluation schedule

Appendix K
- **i.** Data analysis coding strategy - Stage 1 broad thematic coding (3 examples)
- **ii.** Data analysis coding strategy - Stage 2 cross coding (2 examples)
- **iii.** Data analysis coding strategy - Stage 3 & 4 grouping, reordering, coding on
- **iv.** Data analysis coding strategy - Stage 5 propositional statements

Appendix L
- **i.** Ethics proposal
- **ii.** Ethics proposal amendments
- **iii.** Ethics proposal approval

Appendix M
- **i.** Informed consent - Principal/teachers
- **ii.** Informed consent - Parents
- **iii.** Informed assent - Children

Appendix N
- **i.** Plain language statement - Principal/teachers
- **ii.** Plain language statement – Parents
- **iii.** Plain language statement – Children

Appendix O Teacher participation for year 1 and year 2

Appendix P Timetable for year 1 and 2

Appendix Q

i. O&AA Schemes - Infants
ii. O&AA Schemes - First-Second class
iii. O&AA Schemes - Third-Fourth class
iv. O&AA Schemes - Fifth – sixth class

Appendix R

i. O&AA lesson plans - Junior Infants
ii. O&AA lesson plans - Senior Infants
iii. O&AA lesson plans - First class
iv. O&AA lesson plans - Second class
v. O&AA lesson plans - Third class
vi. O&AA lesson plans - Fourth class
vii. O&AA lesson plans - Fifth class
viii. O&AA lesson plans - Sixth class

Appendix S Tips for O&AA

Appendix T

i. Sample resources - Layout for photo star activity
ii. Sample resources - O&AA challenges
iii. Sample resources - Sample control card completion

Appendix U Self-efficacy questionnaire