CHAPTER FIVE

PERCEPTIONS OF PREPAREDNESS TO TEACH PHYSICAL EDUCATION

This chapter presents results and discussion relevant to the question of pre-service generalist teachers' perceptions of preparedness to teach Physical Education. The chapter has four sections. The foci of the first two sections are *Perceptions of Preparedness to Teach PE* and *Conceptions of Primary School Physical Education* respectively. The focus of the third section is the *Juxtaposition for Perceptions and Conceptions.* The chapter concludes with a synthesis of results and discussion.

PERCEPTIONS OF PREPAREDNESS TO TEACH PE

Results and discussion presented in this section address the research question namely: *What are the perceptions of preparedness to teach primary school Physical Education, for pre-service teachers undertaking primary teacher education at one university?* Results from analysis of baseline survey data precede presentation of results for in-depth interview data. Results are sequenced in order of statistical significance or relevance to the study**.**

Planning and Programming

The PTPEPS Survey included items designed to measure respondents' perceptions of preparedness to plan and program for safe and effective learning in Physical Education and Sport. All items utilized a 6-point Likert scale with an option for a 'N/A' response, should the item be deemed not applicable. Data analysis yielded the following results.

For Safe and Effective Learning in Physical Education

The survey item related to planning and programming for Physical Education elicited 394 responses to the Likert scale and six responses to 'N/A'. Of the respondents providing one level of agreement, 84.8% (334/394) indicated that they felt competent and confident to plan and program for safe and effective learning in PE. Frequency distribution of responses across levels of agreement were 33.8% (133/394) who chose the point labelled *Strongly Agree (SA)*, 30.5% (120/394) one

point below *SA* and 20.1% (79/394) two points below *SA*. Of the respondents, 15.2% (60/394), disagreed with the statement. Across three points of disagreement, frequency distributions moving left to right on the Likert scale were: 11.2% (44/394), 3.3% (13/394) and 0.8% (3/394) for *Strongly Disagree*.

A Chi-square Goodness-Of-Fit test (c2 (5, N=394)=228.021, p=.000) established that frequency differences were statistically significant at the p=.000 level. This result suggests that a majority of participants in the study (84.8%) indicated that they feel confident and competent to plan and program for safe and effective learning in Physical Education.

Planning and programming for safe and effective learning in the sub-discipline of PDHPE, namely Physical Education, is a learning outcome of core curriculum units of the HPESS program. In partial fulfilment of assessment requirements for these units, pre-service teachers complete a Physical Education programming assignment. This task required them to create unit and lesson plans using subject matter of the active strands of the NSW BOS PDHPE K-6 syllabus.

Results from this study suggest that pre-service teachers felt confident and competent to plan and program effective Physical Education programs. Morgan and Bourke (2007a, 2008) found that NSW classroom teachers believed they were not adequately planning PE programmes and their programmes were "only somewhat successful" in achieving Physical Education outcomes. Morgan and Bourke (2008) concluded that the programmes of service teachers in their study offered "little educational value."

For Safe and Effective Learning in Sport

Of respondents to the survey, 84.7% (333/393) indicated that they felt competent and confident to plan and program for safe and effective learning in Sport. Seven respondents gave a *N/A* response. Across three points of agreement of the Likert scale, frequency distribution were 31.8% (125/393) *Strongly Agree*, 33.1% (130/393) one point below *SA* and 19.8% (78/393) two points below *SA*. Across three points of disagreement, frequency distributions moving left to right on the scale were 11.2% (44/393), 3.1% (12/393) and 1.0% (4/393) for *Strongly Disagree*.

A Chi-square Goodness-Of-Fit test (c2 (5, N=393)=231.684, p=.000) established that differences across levels of agreement were statistically significant at the

p=.000 level. This result suggests that a majority of participants in the study (84.7%) felt confident and competent to plan and program for safe and effective learning in Sport.

The programming assignment for core curriculum units afforded pre-service teachers the opportunity to program and plan subject matter found in the NSWBOS PDHPE K-6 syllabus content strand *Games and Sports*. In addition, several elective Education Physical Education (EDPE) units of the HPESS program include planning and programming for safe and effective learning in Sport as a learning outcome (i.e., EDPE243 and EDPE441). Further, Sport is one of three disciplines overseen by the *Health, Physical Education and Sport Studies (HPESS)* Team at the university.

Comparison of pre-service generalist teachers' levels of agreement with a statement related to "feeling confident and competent to plan and program for safe and effective learning" in PE and Sport is displayed in Figure 5.1.

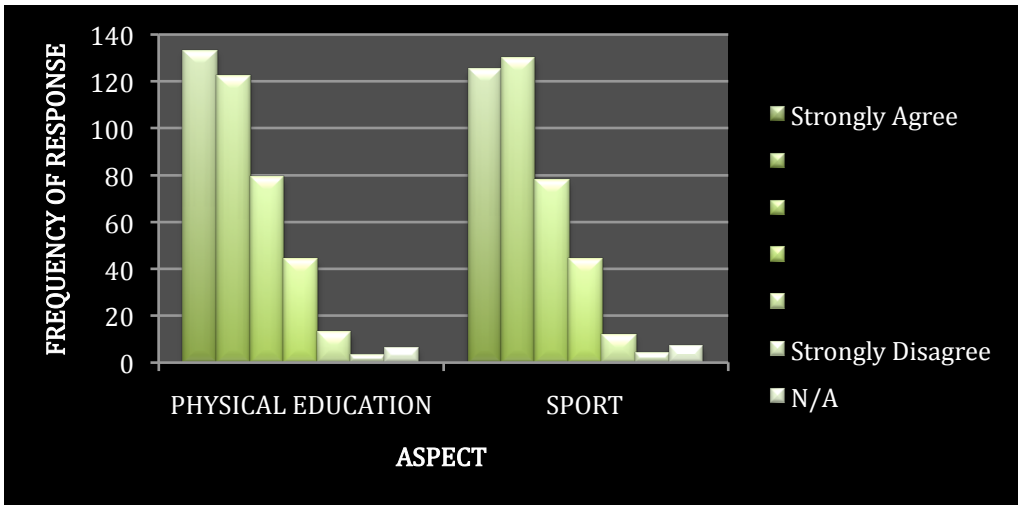


Figure 5.1. Self-perceptions of confidence and competence to plan and program PE and Sport

Graphs displayed in Figure 5.1, show similarity in the distribution of responses for both PE and Sport. Generally, frequencies for levels of agreement are higher than frequencies for levels of disagreement. Approximately one in three cases was in strong agreement with the statement that they felt confident and competent to plan and program for safe and effective learning in PE (33.3%) and Sport (31.8%).

Anecdotally, pre-service generalist teachers in the study express a predominant view of PE being undifferentiated from Sport. This result and observation confirms

findings of the Senate Standing Committee on Environment, Recreation and the Arts (SSCERA) Report (1992) that identified "confusion about the difference between physical education, sport education and school sport, and how these parts of the curriculum should relate to each other" (SSCERA, 1992, p.3).

High self-reported preparedness to plan and program PE and Sport may not be directly attributable to the HPESS program. Several other explanations include overestimation of knowledge in areas of limited familiarity (Bandura, 1986) such as intricacies of teaching (Housego, 1990) and pre-requisite teacher dispositions of moderate-to-high-levels of personal teaching efficacy when entering teacher education. From results thus far the participants in this study hold high perceptions of preparedness to plan and program both Sport and PE following completion of one unit of study in Physical Education.

Teaching Classes of Primary School-aged Children

In addition to items with a focus on programming and planning, the HPESS survey also included items related to "teaching classes of primary school-aged children." One item addressed teaching Primary School PE generally. One item addressed skills common to the active strands, namely, Movement Skills. Three items differentiated recognizable active content strands from the NSWBOS PDHPE K-6 syllabus (2007), namely *Games and Sports*, *Dance*, and *Gymnastics*. Analysis of data collected using these items yielded the following results.

Games and Sports

The survey item pertaining to feeling confident and competent to teach *Games and Sports* to classes of primary school-aged children, elicited 392 Likert Scale responses. Of responses collected on the scale, 93.1% (365/392) nominated one of three points of agreement to "feeling confident and competent". Frequency distributions across the three levels of agreement for these respondents were: 44.6% (175/392) *Strongly Agree*; 33.9% (133/392) one point below *SA*; and, 14.5% (57/392) two points below *SA*. Frequency distributions across three levels of disagreement were 4.6% (18/392) two points left of *Strongly Disagree (SD)*, 2.0% (8/392) one point left of '*SD* and 0.3% (1/392) *Strongly Disagree*.

A Chi-square test for independence (c2 (5,N=392)=399.147,p=.000) established that observed differences in frequency distributions were statistically significant at

the p=.000 level. Results show that most pre-service teachers completing a unit of study (PE) feel confident and competent to teach *Games and Sports* to classes of primary school-aged children.

The term *Games and Sports* is sourced from the NSW BOS PDHPE K-6 syllabus where it is defined by a content strand. Core curriculum units include a three-hour (external students) or six-hour (internal students) practical workshop directly related to pedagogy and practice pertaining to this content strand. Additionally, workshops for internal students include the opportunity to teach subject matter from the *Games and Sports* strand to peers.

Results for feeling confident and competent to teach *Games and Sports* in this study support findings of comparable pre-service teachers (generalists, NSW, and pre-service) by Gard and Fry (1997). The result may also compliment findings that NSW pre-service generalist teachers have a narrowly defined understanding of Physical Education dominated by *Games and Sports* (Gard & Fry, 1997) and may depend on previous knowledge and experiences dominated by games and sports (Webster, 2001).

Movement Skills

To the statement about feeling confident and competent to teach *Movement Skills* to primary school-aged children 392 responses were elicited. Results indicate that 87.0% (341/392) of cases agree to feeling confident and competent. Of these, frequency distributions across three levels of agreement were: 37.5% (143/392) *Strongly Agree*; 37.5% (147/392) one point below *SA* and 16.1% (63/392) two points below *SA.* Frequency distributions across three levels of disagreement were 6.9% (27/392), 2.6% (10/392) and 0.5% (2/392) *Strongly Disagree.*

A Chi-square test for independence (c2 (5,N=392)=313.158, p=.000) established that observed differences in frequency distributions were statistically significant at the p=.000 level. These results indicate that most pre-service generalist teachers in the study feel confident and competent to teach *Movement Skills.*

Pedagogy and practice of *Movement Skills,* more specifically *Fundamental Movement Skills (FMS),* were incorporated into both core and elective units of study in Physical Education. For core curriculum units, movement skills were identified

in the PDHPE K-6 syllabus content. Analysis, assessment and development of FMS were foundational in the elective units of study.

Morgan and Hansen (2008c) found classroom teachers on NSW primary schools believed their programmes were only somewhat successful in achieving outcomes related to "motor skills" which may be considered synonymous with "movement skills."

Primary School PE

To a survey item designed to measure levels of agreement to feeling prepared to teach primary school PE, 84.5% (332/393) of respondents agreed that they feel prepared. Frequency distribution across three levels of agreement were 32.3% (127/393) *Strongly Agree*; 34.4% (135/393) one point below *SA;* and, 17.8% (70/393) two points below *SA*. Frequency distributions across three levels of disagreement were 9.9% (39/393), 3.8% (15/393) and 1.8% (7/393) *Strongly Disagree*.

A Chi-square test for independence (c2 (5,N=393)=231.813, p=.000) established that observed differences in frequency distributions for this item were statistically significant at the p=.000 level. Results indicate that 84.5% of pre-service generalists feel confident and competent to teach primary school PE to classes of primary school-aged children.

Results complement research (Morgan & Bourke, 2005b) reporting "moderate" levels of confidence to teach Physical Education amongst service generalist teachers in NSW. However, these service teachers did not consider their Physical Education teacher education to be effective in preparing them to teach PE.

Dance

The survey item related to feeling confident and competent to teach *Dance* to primary school-aged children elicited 391 Likert scale responses and nine *N/A* responses. Of responses collected on the scale, 75.4% (295/391) nominated one of three points of agreement to feeling confident and competent. Frequency distributions across three levels of agreement were: 21.7% (85/391) *Strongly Agree,* 26.1% (102/391) one point below *SA*, and 27.6% (108/391) two points below *SA*. Frequency distributions across three levels of disagreement were 15.9% (62/391)

two points left of *Strongly Disagree,* 5.6% (22/391) one point left, and 3.1% (12/391) at the point labelled *Strongly Disagree.*

A Chi-square test for independence (c2 (5,N=391)=129.778, p=.000) established that observed differences in frequency distributions for this item were statistically significant at the p=.000 level. These results show that 75.4% (295/391) of pre-service generalist teachers feel confident and competent to teach *Dance* to classes of primary school-aged children.

Gymnastics

Of 400 surveys, 388 included responses to an item about feeling confident and competent to teach *Gymnastics* to primary school-aged children. Results indicate that 61.1% (237/388) of respondents agree to feeling confident and competent. Frequency distributions across three levels of agreement were 15.2% (59/388) *Strongly Agree,* 21.4% (83/388) one point below, and 24.5% (95/388) two points below. Frequency distributions across three levels of disagreement were 21.4% (83/388), 11.1% (43/388) and 6.4% (25/388) *Strongly Disagree*.

A Chi-square test for independence for this survey item (c2 (5,N=388)=57.496, p=.000) established that observed differences in frequency distributions were statistically significant at the p=.000 level. Results suggest that more than half of the cohort of pre-service teachers feel confident and competent to teach *Gymnastics* to classes of primary school-aged children.

As was the case with the content strand *Dance*, *Gymnastics* is also considered a more specialised aspect of Physical Education. Results from this study for *Gymnastics* showing the lowest percentage of participant feeling prepared complement those by Gard and Fry (1997) for which gymnastics had the lowest mean ranking, was the PE subject most concerned about teaching (Morgan, Bourke & Thompson, 2001) and Webster (2001) whose participants reported limited expertise. Morgan and Bourke (2004, 2007) found gymnastics was the subject participants "least prefer to teach" citing safety as a major concern.

To compare feelings of confidence and competence associated with aspects of Physical Education, a graphical description of the frequency, and frequency distribution of responses, was generated. In Figure 5.2, data are presented from left to right from *Strongly Agree* to *Strongly Disagree*.

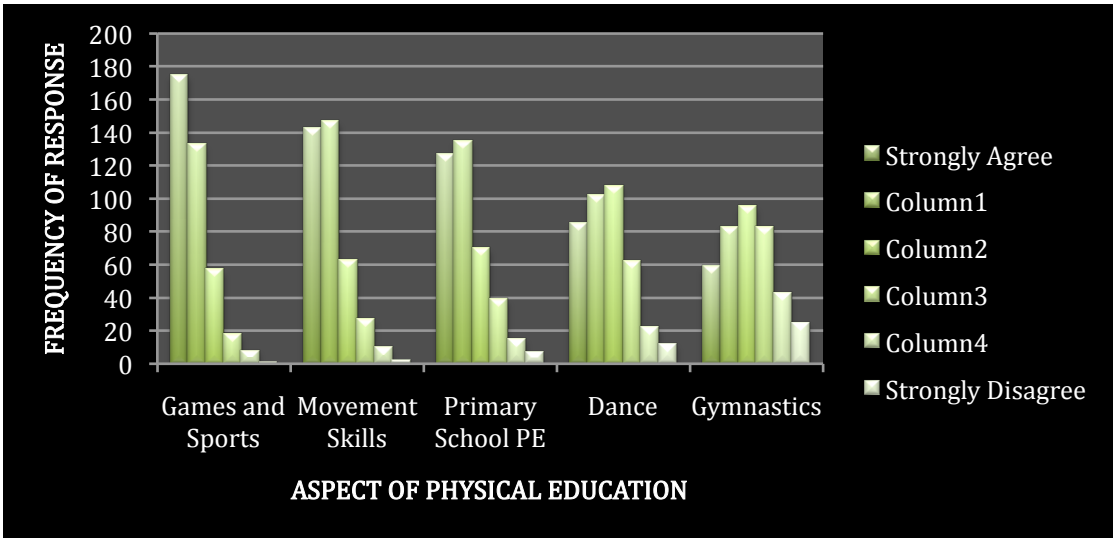


Figure 5.2. Self-perceptions of confidence and competence to teach aspects of Physical Education

Comparison of graphs in Figure 5.2 show that columns representing one of three levels of agreement feature more highly than columns representing one of three levels of disagreement. Further this trend is consistent across all five aspects of Physical Education. Of these aspects, *Games and Sports* shows strongest agreement for feeling confident and competent followed in descending order by teaching *Movement Skills, Dance* then *Gymnastics*. It can be inferred from this data that pre-service generalist teachers completing units of study generally feel more confident and competent to teach *Games and Sports* and *Movement Skills* than *Dance* or *Gymnastics*.

Anecdotal evidence suggests that pre-service teachers in this study feel more confident in a games environment, often citing sporting backgrounds and positive school experiences as contributors to positive perceptions. As stated previously, pre-service teachers reported negative experiences in *Dance* and *Gymnastics.* As *Movement Skills* was a dominant perspective across units of study of the HPESS program (e.g., EDPE214/941; EDPE201; EDPE243; EDPE 341/441; EDPE342/442), teacher education effect may explain the second ranking on the aspects of PE.

Results reported for this aspect of the study are consistent with those of Morgan and Bourke (2005). Comparable pre-service teachers to those in this study reported the highest mean confidence rating for *Games and Sports* and lowest for *Gymnastics.* A

potential teacher education effect was suggested for higher scores as pre-service teachers progressed through years of study.

To summarise, analysis of survey data pertaining to perceptions of preparedness suggest that a majority (84.8%) of pre-service generalist teachers in the study, felt prepared to program, plan and teach primary school PE including *Games and Sports, Movement Skills*, *Dance* and *Gymnastics*. These results provide a baseline for describing pre-service teachers' perceptions of preparedness to teach primary school. To advance the scope and depth of this description, interview data from nineteen participants with different levels of PE specialisation were analysed.

Perceptions

Perceptions of preparedness were further investigated by means of in-depth interview. At interview, participants were asked to respond to the question: "How prepared are you now to teach primary school Physical Education?" Thematic analysis of data collected using this interview question using the procedures described by Colaizzi (1978) yielded two *theme clusters* pertaining to preparedness namely: *Categories of preparedness* and *Feelings of readiness, comfort or confidence.*

Categories of Preparedness

One *theme cluster* that emerged from analysis of interview data was *Categories of preparedness*. Four categories of preparedness, namely "very prepared", "prepared", "pretty prepared" and "not very prepared" resulted from the analysis of interviewees' descriptions of preparedness. Examples of *significant statements* (Colaizzi, 1978) illustrating differences between categories include:

- *"I can't wait to go out and teach it now and I'm really looking forward to it (...) yep and ready to go. So yep, can't wait! It will be great!" (16)* This statement was coded as VERY PREPARED.
- *"I feel a lot more prepared to teach it now having to go through the programming and actually having the opportunity to work with so many different classes which has been great. (17)* This statement was coded as PREPARED.
- *"I think I am pretty prepared. I'll never be ready to do everything in PE but I do feel pretty good about it" (10)* This responses was coded as PRETTY

PREPARED. Arguably, the word "pretty" which was a consistent response from interviewees may be better interpreted as MODERATELY PREPARED.

- *"Now? Not very (laughs). I did one EDPE subject last year and my second one and third one are this semester, this year. So I believe after those that I will probably will be more prepared than a lot of teachers I see now." (6)* This response was coded as NOT VERY PREPARED.

Boundaries between categories of preparedness are best described as "soft" rather than "hard". At least four categories of preparedness emerged to represent the range of feelings expressed by participants.

Categories of preparedness were triangulated at interview using the Visual Language Icon (VLI). Frequency distributions of interviewees' choice of icon are displayed in Figure 5.3. In this representation, the largest icon was coded "Icon 1" referring to "most prepared", and, the smallest icon coded "Icon 5" for "least prepared".

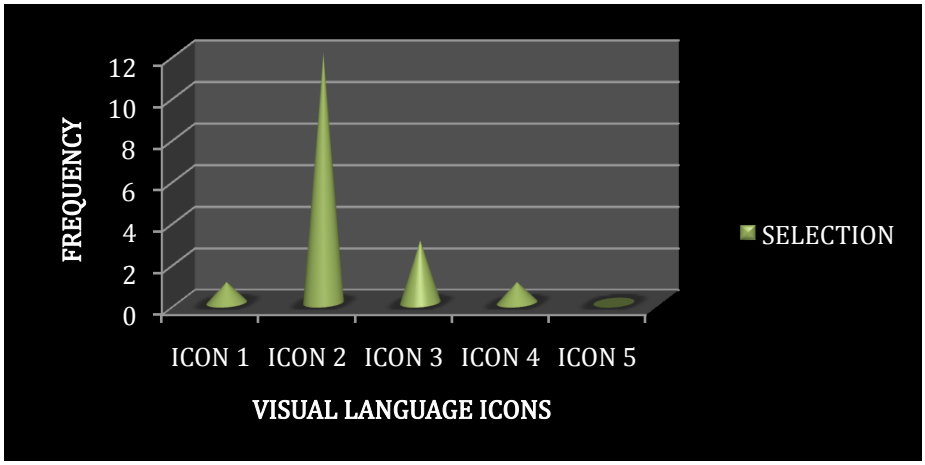


Figure 5.3. Frequency distribution with Visual Language Icons (VLI)

Of nineteen interviewees, one selected the largest icon, 12 selected the second largest icon, three selected the middle-sized icon and one selected the second smallest icon. The remaining two interviewees selected a combination of icons to represent different levels of preparedness for different aspects of teaching primary school PE. No participants selected the smallest icon. As displayed in Figure 5.3, interviewees required only four icons of the VLI to describe preparedness. This

result complements the number of categories for preparedness identified from analysis of lexical (word) data.

Feelings of Readiness, Comfort or Confidence

A further *theme cluster* emerged from analysis of interview data described interviewees' *Feelings of readiness, comfort or confidence to deliver a personal conception of primary school PE*. In the data, interviewees referred to preparedness using words associated with readiness, comfort, and confidence. Examples of *significant statements* for each word category were:

- *"I feel, you know, ready to do it" (18)* coded as READINESS
- *"... feel a lot more comfortable teaching PE now" (5); "I feel quite comfortable" (7)* coded as COMFORT
- *"I feel a lot more confident now" (4); "I need a bit more confidence" (14)* coded as CONFIDENCE.

Thus far, results from survey data suggest that pre-service generalist teachers associate teaching Primary School PE with responsibility for *Programming and planning* together with *Teaching* or delivery of Physical Education. Analysis of the interview data found that pre-service teachers' perceptions of preparedness to teach primary school PE are feelings of *Readiness, Comfort* or *Confidence* expressed using one of four *Categories of Preparedness.* To present a better description of these results a schematic representation is found in Figure 5.4.

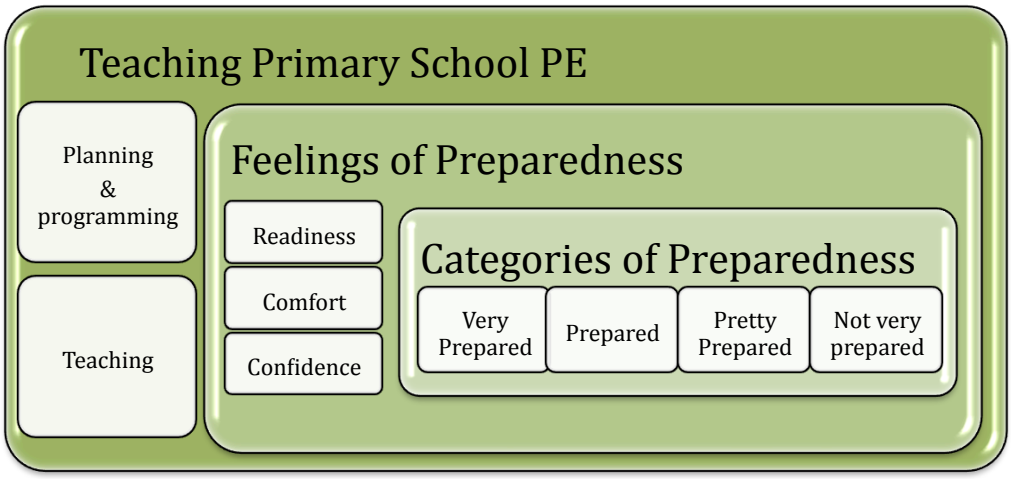


Figure 5.4. Emerging schemata for perceptions of preparedness

The schemata found in Figure 5.4, depicts perceptions of preparedness as a containment relationship of three nested themes. These nested themes have emerged from outcomes of procedural steps of Colaizzi's (1978) together with data from the VLI. The term "nested" was chosen to infer not only relationship between theme clusters but also containment in a broader theme. The broadest theme was *Teaching Primary School PE.* As seen in Figure 5.4, this theme encapsulates *Planning and programming* and *Teaching*. Nested within this broadest theme are *Feelings of Preparedness.* Contained within this theme are feelings of *Readiness*, *Comfort* or *Confidence*. The smallest nest consists of a cluster of four, *Categories of Preparedness*. Overall, the schema shows perceptions of preparedness to teach primary school PE as a containment relationship of roles, feelings and categories of preparedness.

This section has concluded with an empirical description for pre-service generalist teachers' perceptions of preparedness to teach primary school PE following completion of tertiary units of study in Physical Education. The next section elaborates further on this description by describing results pertaining to these teachers' personal conceptions of primary school PE.

CONCEPTIONS OF PRIMARY SCHOOL PHYSICAL EDUCATION

Results and discussion presented in this section elaborate on the empirical description for perceptions of preparedness by introducing pre-service generalist teachers' conceptions of primary school PE. Conceptions emerged from analysis of interview data collected from nineteen participants. These participants represented cohorts across the length of the Health, Physical Education and Sports Studies (HPESS) program. Results are reported in this section by *theme clusters* namely, *Personal Conceptions* and *Organizational Structures*.

Personal Conceptions

The PTPEPS Survey (Appendix D) did not include any items designed to collect respondents' views on conceptions of primary school PE. However, the opening question of the Interview Guide asked: "Speaking from your point of view, what is primary school Physical Education?" Analysis of interview data revealed a *theme cluster* termed *Personal conceptions of primary school PE.* This theme consisted of

interviewees' ideas about the purpose, goal or importance of PE in the primary school, together with organisational structures needed to support these ideas.

Four purposes for primary school PE emerged from interview data to represent all ideas about the purpose, goal or importance of primary school PE. These ideas were

- Holistic development of primary school-aged children (mind and body; physical, cognitive and affective);
- Acquiring skills necessary for fun, enjoyable participation in developmentally appropriate physical activity or Sport;
- Participation in physical activity needed to promote active lifestyle; and
- Promoting active, healthy lifestyles: learning what a healthy lifestyle is, essentials of health, processes involved in making informed health decisions and the need for physical activity.

Synthesised further, interviewees perceive that the purpose of primary school PE is promoting any of the following: child development; motor skill acquisition; active lifestyle; or healthy lifestyle. These terms are commonly used when teaching PE and associated primary school-based subjects at the pre-service Teacher Education level. For greater clarification, child development refers to typical stages of growth, development and maturation during childhood; motor skill acquisition emphasises how people learn to move efficiently and effectively; active lifestyle is concerned with "adopting activity patterns that promote (their) wellbeing" (NSW K-6 PDHPE Syllabus 1999, p.10); and healthy lifestyle relates to choices that promote "mental, physical, social and spiritual wellbeing" (NSW K-6 PDHPE Syllabus 1999, p. 6).

Pre-service teachers' ideas pertaining to primary school PE derived from analysis of the interview data tend to follow the foci of handbook descriptions for EDPE units of study. For example, holistic development of the child is a dominant theme found in the NSW BOS K-6PDHPE syllabus document and explored in core curriculum units such as EDPE214 and EDPE941. A secondary theme is an active, healthy lifestyle. Skill acquisition or motor skill is central to a suite of units of study such as EDPE201; EDPE243; EDPE340/440 and EDPE342/442. The importance of participation in physical activity as health promoting is a learning outcome of EDPE343/443. Given the alignment between pre-service teachers' responses and

content embedded in HPESS units, it is reasonable to classify this result as a university experience.

Results from this study are consistent with conceptions and benefits for primary or elementary school PE reported by lisahunter (2006). Conceptions found in the literature that conform to results from this study include motor skills and motor development, health, exercise and fitness, and aspects of holistic development such as cognitive change and social processes.

Organizational Structures

In addition to identification of purpose, goal and importance, the *theme cluster* termed *Personal conceptions of primary school PE* included a description of organizational structures that pre-service generalist teachers believe were necessary to support a conception of Physical Education. Pre-service teachers identified primary school "structures" as a combination of teaching-learning programs and timetables. Five descriptions of organisational structures were included in the *exhaustive description* for the *theme cluster*. These structures were

- *Ad hoc* approach to scheduling PE in schools i.e. no dedicated time for PE nor teaching/learning program;
- Irregular, dedicated time for PE with no teaching/learning program;
- Timetable with regular, dedicated time for PE and a class teaching/learning program;
- Timetable with regular, dedicated time for PE and a stage teaching/learning program; and
- Timetable with regular, dedicated time for PE and a whole school (K-6) teaching/learning program.

Stated more simply, the purpose or purposes of primary school PE are supported by systems to organise time and/or content. These systems include class, stage or school timetables to organise time in combination with class, stage or whole school teaching/learning programs to organise content.

Programming and session planning, including allocation of time for sections of programs and plans, are included as learning outcomes of several EDPE units such as EDPE214; EDPE941; EDPE243; EDPE340/440. Scheduling using timetables for

a whole school or cluster of schools is not an intentional outcome of units of study. Rather it is task completed by student teachers completing the Specialist Internship. As such it is reasonable to classify this learning outcome as professional experience within a Primary School setting.

Personal conceptions of primary school PE contributed a further dimension to the emerging description of pre-service generalist teachers' perceptions of preparedness to teach primary school PE. The previous schema (Figure 5.4) highlighted the nested relationship of roles, feelings and categories. Results reported in this section for personal conceptions of primary school Physical Education expanded the schemata to include features displayed in Figure 5.5.

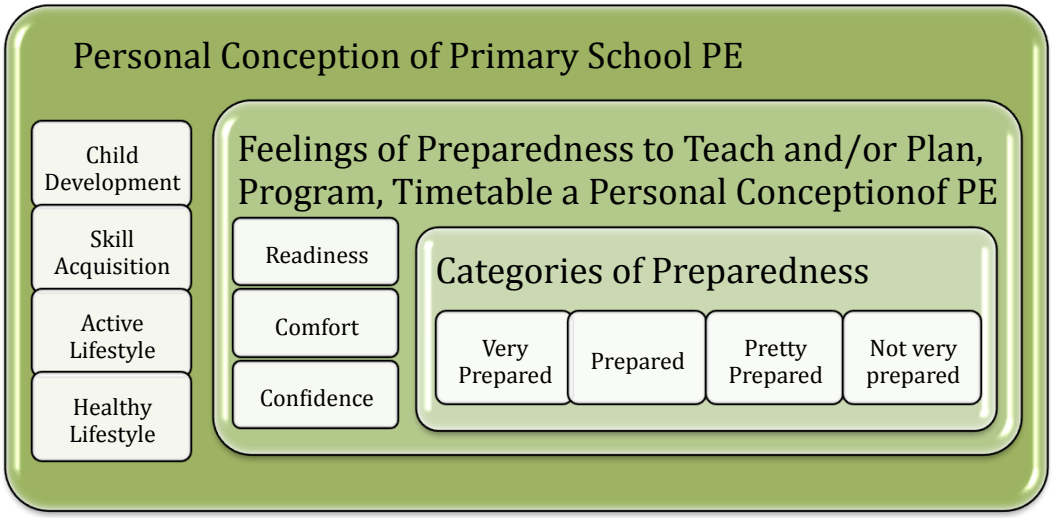


Figure 5.5. Revised schemata for perceptions of preparedness

In the revised schema, the broadest theme was *Personal conception of primary school PE.* This theme encapsulates four different conceptions of PE namely orientations toward child development, skill acquisition, active lifestyle and healthy lifestyle. Nested within this broadest theme is *Feelings of preparedness to teach and/or plan, program and/or timetable a personal conception of PE.* Contained within this theme are feelings of readiness, comfort or confidence. The smallest nest consists of a cluster of four *Categories of preparedness.* As such, the schematic representation summarises results for perceptions of preparedness to teach primary school PE.

Further investigation of interview data, utilizing the text-mining software tool Leximancer (Smith, 2000), confirmed elements of the schema found in Figure 5.5. Semantic patterning of interview data using Leximancer yielded five *dominant*

themes. Dominance was established using the criteria that the ranked concept in the concept list needed to be greater than 50%. Based on this criteria *dominant themes* were

- think (absolute count = 55, ranked concept = 100%);
- teach (absolute count = 36, ranked concept = 65.4 %);
- feel (absolute count= 33, ranked concept = 60 %);
- icon (absolute count= 29, ranked concept = 52.7%); and
- prepared (absolute count = 28, ranked concept = 50.9%)

Absolute count refers to the number of times concepts were found in the interview data. Consequently, "think" was the highest ranked concept (100%) appearing 55 times in the data set of nineteen interviews.

Relationship between the five *dominant themes* is shown in the Leximancer concept map represented in Figure 5.6 as circles. Two characteristics of these circles namely "brightness" and "nearness" assist with description of semantic patterning. The brighter the concept the more frequently it appears in item responses.

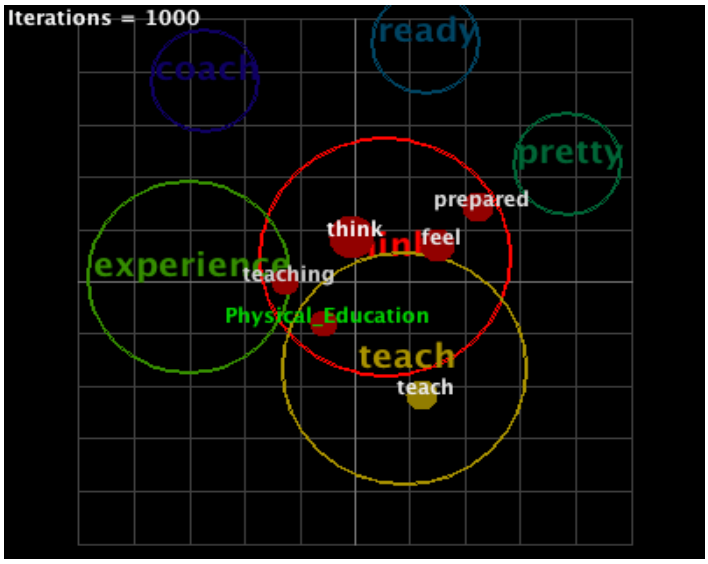


Figure 5.6. Thematic map for concept "prepared"

In Figure 5.6, the brightest circle is 'think'. Concepts that appear nearest to each other are "think", "teach" and "experience". Consequently "think," "teach," and "experience" co-occur or appear in similar conceptual contexts in the data set. From nineteen participant responses to the interview question about preparedness it

appears that perceptions of preparedness to teach primary school PE are thoughts about teaching and/or experience.

Further exploration of the *dominant theme* enabled description of the cluster group that comprises that theme. As shown in Figure 5.6, the cluster group inside the circle defining "think" includes: *think; feel; prepared; teaching;* and *Physical Education.* Using the ranked concepts tool of Leximancer, the theme "think" was found to consist of a group of concepts: teach (40%), feel (36.3%), prepared (34.5%), experience (30.9%), school (30.9%), teaching (30.9%) and Physical Education (29%). The form of *perceptions of preparedness to teach primary school PE* may be described as thinking about a cluster of concepts about teaching, feeling, experience, school and Physical Education.

Results from analysis of these interview data identified utilizing Leximancer complements and expands upon dimensions found in the schemata for perceptions of preparedness. The centrality of thoughts related to teaching and associated feelings are complementary with the revised schema. The dimension of experience that did not emerge from manual analysis of data introduced further questions about the source of thoughts, feelings and ideas.

JUXTAPOSITION FOR PERCEPTIONS AND CONCEPTIONS

The empirical description for perceptions of preparedness to teach primary school PE provided the opportunity to formulate a new question, namely "How are student teachers conceptions of primary school PE and perceptions of preparedness juxtaposed?" As this question was formulated after the PTPEPS survey instrument was developed, results are drawn solely from analysis of interview data. Results are descriptions for the relationship between perceptions and conceptions as a *Fundamental Structure* (Colaizzi, 1978) and *Patterns of Association.*

Fundamental Structure

The aim of analysis using Colaizzi's (1978) framework is description of a *fundamental structure* for the phenomenon under investigation. Due to employing mixed-methodology, the traditional method of progressively describing the unfolding of *significant statements*, *formulated meanings*, *theme clusters*, *exhaustive description* then *fundamental structure* was not viable. Therefore, findings from analysis of data pertaining to pre-service teachers perceptions' of

preparedness to teach primary school PE are presented in reverse order. The *fundamental structure* and associated *exhaustive description* are presented first.

With respect to perceptions of preparedness, the *fundamental structure* found from the data was "feelings". The *exhaustive description* for these feelings read:

> Pre-service teachers' perceptions of preparedness to teach primary school PE at the tertiary university are feelings of readiness, comfort or confidence to deliver a "personal conception of primary school PE". Irrespective of which concept of PE is held by these teachers, participants feel prepared to teach this subject. Pre-service generalists referred to four categories of preparedness, namely "not very but prepared", "pretty prepared", "prepared", and "very prepared."

Baseline survey data provided evidence that a majority of pre-service generalist teachers completing units of study in tertiary Physical Education at the university held positive perceptions of preparedness. Interview data contained four conceptions for primary school PE.

Patterns of Association

Tabular description for *Patterns of Association* were created by charting results from analysis of interview data pertaining to *perceptions of preparedness* against conceptions of primary school PE. Table 5.1 shows the *pattern of association* for the five participants who completed the Physical Education Specialist Internship.

Table 5.1

Pattern of Association – Perceptions and Conceptions

SPECIALIST INTERN GROUP	PERCEPTIONS OF PREPAREDNESS	CONCEPTION OF PRIMARY PHYSICAL EDUCATION
Erica	Survey = Strongly Agree Interview= Pretty Prepared VLI= 4	Participation in physical activity needed to promote active lifestyle.
Sara	Survey = Strongly Agree Interview= Pretty Prepared VLI= 4	Acquiring skills necessary for fun, enjoyable participation in developmentally appropriate physical activity or Sport.
Maya	Survey = One point R of SA Interview= Very Prepared VLI= 4	Acquiring skills necessary for fun, enjoyable, participation in developmentally appropriate physical activity or Sport.
Alicia	Survey = Strongly Agree Interview= Prepared VLI= 4	Holistic development of primary school-aged children.
Eliza	Survey = Strongly Agree Interview= Very Prepared VLI= 5	Participation in physical activity needed to promote active lifestyle.

In Table 5.1, the first column provides the pseudonym for participants. The second column shows three measures for *perceptions of preparedness,* namely the Likert scale point in response to the survey item about preparedness to teach primary school PE, code for response to the interview question about preparedness, and choice of icon of the Visual Language Icon. The third column shows ideas related to the purpose, goal or importance of primary school PE sourced from the exhaustive description for the *theme cluster*, termed *Personal Conceptions of Primary School PE*.

Results for the Specialist Interns shows high or moderately high self-reported perceptions of preparedness. Four of five participants chose *Strongly Agree* to the statement "I feel prepared to teach primary school PE." The fifth participant chose one point to the right of *Strongly Agree*. Of the four categories for prepared coded from interview data, two participants were *Very Prepared,* two participants were *Pretty Prepared,* and the remaining participant was *Prepared.* The range of icons selected from the VLI was 4 to 5 suggesting that participants were very prepared or prepared. Yet, self-reported perceptions of preparedness were referenced to different conceptions of primary school PE. Further there is no relationship between categories of perceptions and conception. It is reasonable to conclude that participants held positive perceptions of preparedness to teach primary school PE. However, the purpose, importance, or conception of PE varied.

Results from the *Fundamental Structure* and *Patterns of Association* are complementary, suggesting that irrespective of personally held conceptions of primary school Physical Education, pre-service teachers hold relatively positive or high perceptions of preparedness. These results suggest that an outcome of the HPESS program is more likely to be change in conceptions of primary school PE than perceptions of preparedness to teach that conception of PE.

Proposed Theoretical Description

To further advance description for student teachers' perceptions of preparedness to teach primary school at the university, results reported in this chapter as an empirical description were interpreted to form a theoretical description. To achieve this purpose, the empirical description was interpreted using the framework of transformative learning theory offered by Mezirow and Associates (2000). The theoretical description is shown in Figure 5.7.

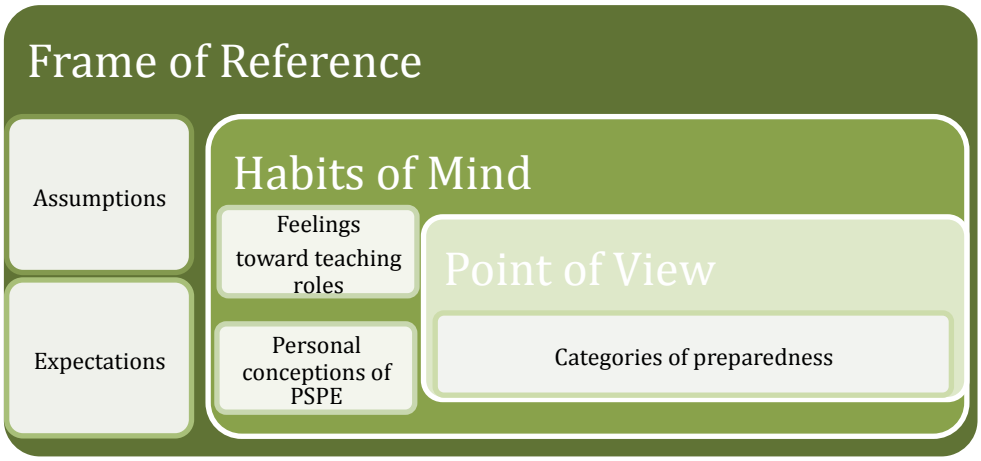


Figure 5.7. Proposed theoretical description

As was the case for the empirical description, a containment of three *structures* characterizes Figure 5.7. *Structures* are termed using Mezirow's elements of transformative learning theory, namely *Points of View*, *Habits of Mind*, and *Frame of Reference*. A more detailed description for each *structure* in the context of this study follows.

Point of View

For pre-service generalist teachers at the university, *Points of View* were *categories of preparedness*. Irrespective of the method of data collection, the majority of teachers in the study judged themselves within categories of being prepared. Categories included word categories (feelings), visual icons (judgements) and points of a Likert scale (agreement). According to Mezirow (2000, p.18) these *Points of View* "comprise(s) clusters of meaning schemes – sets of immediate specific expectations, beliefs, feelings, attitudes, and judgements – that tacitly direct and shape a specific interpretation and determine how we judge, typify objects, and attribute causality." For this study, categories of preparedness are described as *Points of View* because there is evidence that "preparedness" was linked to student teachers feelings, judgements, beliefs, and expectations regarding primary school PE.

Habits of Mind

Two *Habits of Mind* are found in Figure 5.7 namely *feelings toward teaching roles* and *personal conceptions of primary school PE*. According to Mezirow's (2000, p.17), a *habit of mind* is "a set of assumptions – broad, generalized, orienting predispositions that act as a filter for interpreting the meaning of experience." Of

the different types of *Habits of Mind* described by Mezirow (1991), *feelings toward teaching roles* are assumptions related to participants' self-concept and emotional response may be best described as a "psychological habit of mind". *Personal conceptions of primary school PE* were assumptions about the value, purpose or importance of PE in the primary school and standards of quality PE that map closely to Mezirow's (1991) description of "aesthetic habits of mind".

Frame of Reference

As was the case with the revised schemata for perceptions of preparedness, features of Figure 5.7 are encapsulated within a containment of three nested structures. The outer structure of the revised schemata was the highest order of analysis in Colaizzi's (1978) framework, namely a *fundamental structure.* In Figure 5.7, *Points of View* are a sub-set of *Habits of Mind* that in turn, are a sub-set of *Frames of Reference*. According to Mezirow (2009, p.16), this frame is "the structure of assumptions and expectations" through which people filter, make meaning of, or interpret experience. As suggested by Mezirow (2000, p.17) "a frame of reference is composed of two dimensions, a habit of mind and resulting point of view". In this study, *perceptions of preparedness to teach* are described theoretically as a composite of psychological and aesthetics *Habits of Mind* together with a resulting *Point of View*. Consequently, these perceptions may be understood as *Frames of Reference* for preparedness to teach.

CONCLUSION

Four Research Results (RR) have been reported in this chapter related to pre-service teachers' perceptions of preparedness to teach primary school Physical Education. These were:

RR1: Pre-service generalist teachers indicated that they felt prepared to:

- Plan and program for safe and effective learning in Physical Education (84.8%) and Sport (84.7%).
- Teach classes of primary school-aged children in the areas of *Games and Sports* (93.1%), *Movement Skills* (87.0%), Primary School Physical Education (84.5%), *Dance* (75.4%) and *Gymnastics* (61.1%).

Findings from other studies of pre-service teachers in comparative contexts (i.e., NSW, generalist or non-specialist teachers, primary school and PE) are generally inconsistent with these results for feelings related to "planning and programming" Physical Education (Morgan & Hansen, 2008a, 2008b) but consistent for "teaching PE" and "aspects of primary school PE" (Fry, 1997; Morgan & Bourke, 2005, 2008).

When RR1 is considered in the light of the broader literature on teacher preparation and education, it may be plausible as Housego (1990, p.46) suggests that pre-service teachers' "early and unexpected confidence" to teach may be attributable to firstly, lack of familiarity with the intricacies of teaching generally, and secondly high levels of *personal teaching efficacy* being pre-requisite to entering a teacher preparation program.

RR2: To describe perceptions of preparedness participants in this study employed four categories, namely *very prepared, prepared*, *pretty prepared* and *not very prepared*. Three similes adopted by pre-service teachers for "preparedness" were *readiness*, *comfort* and *confidence.*

RR2 provides further evidence of the difficulties and challenges faced when researching teachers' thoughts, beliefs, attitudes, and values. These examples of multiple meanings for "preparedness" illustrate an advantage of adopting an interpretive research approach. This approach gives the researcher access to meanings from the perspective of participants.

RR3: Four purposes for primary school PE emerged from the interview data, namely holistic development of primary school-aged children, acquiring skills, participation in physical activity, and promoting an active and healthy lifestyle.

Purposes for primary school Physical Education identified in this study are consistent with two of four purposes identified by lisahunter (2008). These were clusters of functions or purposes related to motor skills then health and fitness. The holistic development of primary school-aged children may be inferred as a broader umbrella term for lisahunter's (2008) foci for social processes and cognitive change.

RR4: Three major approaches to organise and structure primary school PE were identified from the interview data, namely variations for scheduling, programming, and delivering Physical Education.

RR5: Pre-service teachers' perceptions of preparedness to teach PE conform to Mezirow and Associates (2000) description for *Frames of Reference (FoR)*.

No literature was found which described, explained or predicted perceptions of preparedness to teach primary school Physical Education using the meaning-making structures described by Mezirow and Associates (2000).

Overall, following completion of at least one unit of study of the HPESS program, a majority of pre-service generalist teachers in this study reported feeling prepared to plan, program, timetable and teach a personal conception of primary school Physical Education. These perceptions of preparedness were thoughts, feelings and ideas that conformed to Mezirow and Associates' (2000) notion of a *Frame of Reference*. This frame comprised a web of assumptions related to the purpose and importance of Physical Education and expectations of readiness, confidence, or comfort to deliver a personal conception of primary school PE.

This chapter has traced the development of an empirical and theoretical description for pre-service generalist teachers' perceptions of preparedness to teach primary school PE. The next chapter, Chapter Six, presents results, discussion, and conclusions related to the question of *Contributors to Pre-service Teachers' Perceptions of Preparedness to Teach Primary School Physical Education.*

CHAPTER SIX

CONTRIBUTORS TO PRE-SERVICE TEACHERS' PERCEPTIONS OF PREPAREDNESS TO TEACH PRIMARY SCHOOL PHYSICAL EDUCATION

This chapter presents results and discussions pertaining to the study's research question related to contributors to pre-service teachers' perceptions of preparedness to teach primary school Physical Education. The chapter has two sections. The first section presents *Results from Analysis of Survey Data.* The next section *Results for Analysis of Interview Data.* The final section provides a triangulation of results to conclude the chapter.

RESULTS FROM ANALYSIS OF SURVEY DATA

The PTPEPS Survey included fifty-two items. Fifty-one of these items used a 6-point Likert scale to collect participants' level of agreement to statements provided. The remaining item required a written response to the question: *Is there a learning experience from an EDPE unit that has contributed MOST to your perceptions of preparedness to teach primary school PE? If YES, please describe that learning experience.*

To identify potential contributors to respondents' perceptions of preparedness in the data, responses to items collected by means of Likert scales, were arranged in cross tabulation with responses to the item *I feel prepared to teach primary school PE.* The strength of association between the cross tabulated variables, (namely, row and column) was calculated using Phi. The value of Phi was then interpreted as Effect Size (ES) using Cohen's (1988) standards. Results from this analysis are reported by *Effect Size.*

Effect Size

Cross-tabulation of survey data, collected using Likert scales, identified association between feelings of preparedness to teach primary school PE and variables related

to contributors to those perceptions. Strength of association between the variables is reported by *Large, Medium,* and, *Small* Effect Size *(ES)*.

Large ES

Four survey item variables were found to be strongly associated with agreement to feeling prepared to teach primary school PE. All variables related to feeling of confidence and competence. Variables with large *effect size* were: *I feel confident and competent to*

1. teach *Games and Sports* to classes of primary school-aged children (c2 (2, N=392)=156.3, p=.000) effect size .631;
2. plan and program for safe and effective learning in PE (c2 (1, N=398)=135.0, p=.000) effect size .587;
3. teach *Movement Skills* to classes of primary school-aged children (c2 (1, N=392)=116.5, p=.000) effect size .545; and
4. plan and program for safe and effective learning in Sport (c2 (1, N=391)=111.6, p=.000) effect size .534.

Results demonstrate strong association between pre-service generalist teachers' feelings of preparedness and four intended learning outcomes of EDPE units. The first three variables reflect outcomes described in core curriculum units of study. The remaining variable related to planning and programming Sport is an intended outcome of units of study with a focus on Sports Coaching but may also be perceived by students to link with the *Games and Sports* strand of the NSW BOS PDHPE K-6 syllabus.

Strong effect size for confidence and competence to teach the content strand *Games and Sports* and *Movement Skills*, and to plan and program for learning in PE and Sport was interpreted as major contributors to students' perceptions of preparedness. The survey was worded in such a way that all four variables were attributable to Physical Education units of study of the HPESS program at the university.

Medium ES

Survey item variables found to have a medium effect size (Cohen, 1988) were

1. Confidence and competence to teach *Gymnastics* to classes of primary school-aged children (c2 (1, N=398)=94.7, p=.000) effect size .486;
2. Confidence and competence to teach *Dance* to classes of primary school-aged children (c2 (1, N=389)=66.4, p=.000) effect size .413; and
3. Agreement that learning experiences in my most recent EDPE unit required me to build confidence and competence required to fulfil different teaching and coaching roles (c2 (1, N=386)=47.6, p=.000) effect size .351.

Gymnastics and *Dance* are content areas of the PDHPE K-6 syllabus addressed in core curriculum units of study. As the "most recent EDPE unit" completed by survey respondents varied, pre-service teachers who agreed that learning in an EDPE unit required different roles, based their ideas on completion of different units of study. These units were designed to offer different perspectives on teaching/coaching roles.

Results provide some evidence that the opportunity to build confidence and competence to teach the more specialised strands of *Gymnastics* and *Dance,* and to fulfil different roles as a teacher or coach, was moderately associated with perceptions of preparedness. Such opportunities may be interpreted as contributors to perceptions of preparedness.

Small ES

Of survey items arranged in cross-tabulation, nineteen were found to have small effect size. Due to the number of variables, results were organised into three categories. Firstly, those attributable to characteristics of pre-service teachers prior to their initial teacher education, secondly results attributable to course or program outcomes, and thirdly those attributable to EDPE unit outcomes.

The first category included six associations attributable to characteristics of the pre-service teachers prior to their initial teacher education. These were:

1. Intends to list playing and coaching sport as a Special Interest when applying for employment as a teacher (c2 (1, N=384)=18.4, p=.000) effect size .219;

2. Had quality teaching of PE as a student in primary school (c2 (1, N=389)=18.6, p=.000) effect size .219;
3. Personal school experience of PE and sport influenced the view that was brought to the university about the role of teachers responsible for delivery of PE (c2 (1, N=390)=17.2, p=.000) effect size .210;
4. Positive memories of primary school Sporting carnivals (c2 (1, N=367)=15.0, p=.000) effect size .202;
5. Positive memories of primary school Sport afternoons (c2 (1, N=376)=13.8, p=.000) effect size .192; and
6. Positive memories of primary school PE (c2 (1, N=387)=10.9, p=.001) effect size .167.

Results suggest that attributes of pre-service generalist teachers were contributors to perceptions of preparedness. These attributes included personal school and community experiences of Sport and/or PE, interest in Sport together with positive memories of school PE/Sport. Based on the relative value of Phi, pre-service teacher attributes are not as strongly associated with feeling prepared to teach primary school PE as university-created experiences reported for high ES.

The second category included two variables associated with course or program outcomes related to the professional experience component of initial teacher education. These were opportunities to

1. Demonstrate quality teaching of PE syllabus content (c2 (1, N=387)=23.4, p=.000) effect size .246; and
2. Observe quality teaching of primary school PE in a school (c2 (1, N=387)=19.6, p=.000) effect size .225.

Practicum or professional experience during teacher preparation is a mandatory requirement for qualification. Due to subject marginalization, practicum placement in NSW does not ensure that there is the opportunity to observe or experience quality teaching of primary school PE. These results suggest that for survey respondents, these opportunities were only “slightly” associated with feelings of preparedness.

The third category was variables associated with learning experiences in their most recent EDPE unit. Listed in descending order of strength of association, these experiences required pre-service teachers to:

1. Resolve a problem of contemporary PE or Sport (c2 (1, N=381)=26.8 p=.000) effect size .265;
2. Discuss different points of view (c2 (1, N=389)= 19.28, p=.000) effect size .223;
3. Acquire knowledge and understanding needed to enact new perspectives on PE or sport (c2 (1, N=387)=15.2, p=.000) effect size .198;
4. Plan a course of action that was different to my previously held plans (c2 (1, N=380)=14.2, p=.000) effect size .194;
5. Integrate new perspectives into my practices (c2 (1, N=384)=14.3, p=.000) effect size .193;
6. Acquire new skills that would be needed to enact new or different plans of action (c2 (1, N=384)=9.9, p=.002) effect size .160;
7. Critique assumptions held about PE or Sport (c2 (1, N=387)=8.51, p=.001) effect size .148; and
8. Try new roles in teaching PE or coaching sport that I had not previously envisaged (c2 (1, N=382)=7.7, p=.005) effect size .142

Results for small ES suggest that pre-service generalist teachers associate in some "small" way, steps involved in learning to teach. All item variables in this list are recognizable steps of Mezirow's (1978) description of transformative learning.

In summary, values from a chi-square test for independence for ordinal survey data arranged in cross-tabulation with *feelings of preparedness to teach primary school PE* resulted in identification of 41 contributors associated with *perceptions of preparedness.* These identifiers are significant at p<.05. Of 41 item variables, seven with large (Phi>0.50) or medium (0.30>Phi<0.50) effect size were labelled "common contributors". These contributors are summarised in Table 6.1.

Table 6.1

Common Contributors To Perceptions of Preparedness

COMMON CONTRIBUTORS	Phi or Cramer's V VALUE
LARGE EFFECT SIZE WITH MEASURE OF PERCEPTIONS OF PREPAREDNESS (Phi>.50)	
Confidence and competence to teach classes of primary school-aged children *Games and Sports*	.631
Confidence and competence to plan and program for safe and effective learning in PE	.587
Confidence and competence to teach classes of primary school-aged children movement skills	.545
Confidence and competence to plan and program for safe and effective learning in Sport	.534
MEDIUM EFFECT SIZE WITH MEASURE OF PERCEPTIONS OF PREPAREDNESS (0.30>Phi <0.50)	
Confidence and competence to teach classes of primary school-aged children *Gymnastics*	.486
Confidence and competence to teach classes of primary school-aged children *Dance*	.413
Learning experiences in my most recent EDPE unit required me to try new roles in teaching PE or coaching Sport	.351

Although item variables with small effect size were statistically significant, they were not included as "common contributors" as relationships between the item variable and feelings of preparedness were not as strong (Phi<0.50).

Dominant Themes

To the survey item about *learning experiences that contributed most to perceptions of preparedness to teach primary school PE,* 56.7% (220/388) of respondents indicated *Yes* and 41.5% (161/388) responded *No.* The remaining seven respondents (1.8%) did not volunteer a response. Of participants indicating *Yes* 77.7% (171/220) described a learning experience.

Manual coding of written response data by frequency of occurrence enabled identification of six themes and 30 sub-themes. These results from survey data are shown in Table 6.2.

Table 6.2

Learning Experiences Contributing Most to Perceptions of Preparedness (Survey)

THEME	FREQUENCY	SUB-THEMES (Frequency)
Practical workshops in EDPE units of study	61	Residential school workshops (25) Dance workshops (24) Gymnastics workshops (20) Games and Sports workshops (12)
Actually teaching Physical Education or coaching/teaching Sport	40	Peer teaching (32) Coaching sport (6) Teaching K-6 PE on internship (3)
Learning different perspectives on Physical Education	34	Developmental perspective (7) Safety in PE (6) Skills/FMS perspective (4) Game Sense perspective (4) Inclusive PE (3) Sensitive issues (1); Holistic approach (1); Team teaching (1)
Programming and planning Physical Education	22	Programming (13) Assignment (15) Planning (6) Athletics carnival (3) 4-week K-6 for internship (1); Unit (1); Planning & assessing FMS (1); Using Game Sense (1); Warm-ups & warm-downs (1)
Observing others teaching primary school PE or Sport	14	Peers (7) HPESS lecturers (4) Sports coaches (4) Listening to feedback on teaching (3) Listening to teachers (1)
Specific EDPE units	13	EDPE units generally (4) EDPE941 (4) EDPE340 (2); EDPE143/243 (2); EDPE201 (1); EDPE341 (1); EDPE443 (1); Internship (1)

In Table 6.2, *frequency* refers to the number of respondents who identified a theme. *Sub-theme frequency* refers to the number of times a sub-theme was found in the data set. Theme frequency does not necessarily equate to the sum of sub-theme frequencies because respondents may have listed several sub-themes within one response. For example *Practical workshops in EDPE units* was a theme found in 61 of 171 responses. Within these 61 responses, "residential school workshops" was found on 25 occasions.

Of six themes reported in Table 6.2, three themes were dominant by frequency of occurrence. The first and most dominant theme was *Practical workshops in EDPE units* 35.7% (61/171). At the university, practical workshops provide students with opportunity to actively participate in Physical Education. In the core curriculum units (EDPE941 and EDPE214) practical workshops are designed to model the pedagogy and practice of teaching the active strands of the syllabus with a K-6 perspective. Workshops are offered in *Dance*, *Games and Sport,* and *Gymnastics*. Off-campus students enrolled in EDPE941, participate in practical workshops at a mandatory residential school. Each of three workshops at this three-day school is conducted over a four-hour period. On-campus pre-service teachers enrolled in EDPE214 participate in practical workshops of 2 hours duration over 9 weeks.

The second theme was *Opportunity to actually teach PE or coach sport* in partial fulfilment of learning experiences in both core and elective EDPE units. One example taken from Table 6.2 is "peer teaching" whereby students in the internal core curriculum unit (EDPE214) work in pairs to teach peers a movement skill. A further example is opportunity to coach individuals or teams in Sport. This opportunity is provided in sports coaching units (e.g., EDPE341 and EDPE441). A final example was opportunity to teach classes of primary school-aged children across all stages of schooling during the PE specialist practicum. Teaching experiences of this practicum range across the active content strands of *Dance*, *Gymnastics,* and *Games and Sports.* Teaching and coaching PE/Sport in the context of units of study contribute to perceptions of preparedness.

The third theme was *Learning different perspectives on PE.* Of these, the highest frequency of references related to learning about the developmental perspective of child growth, development and maturation. Perspectives related to safety in PE were also prominent. Units of study with a focus on Physical Education (EDPE) at the university were intended to give pre-service teachers the opportunity to study PE from different perspectives. Core curriculum units adopt a syllabus perspective. Elective units offer a range of philosophical, physiological, sociological, pedagogical and historical perspectives.

In summary, the dominant themes that emerged from analysis of survey responses requiring description of learning experiences that *contributed most to perceptions of preparedness* included: practical workshops in EDPE units, teaching PE or

coaching sport, and learning different perspectives for Physical Education. Of these themes, opportunity to participate in practical workshops in *Dance, Gymnastics,* and *Games and Sports* in core PDHPE curriculum units contributed most to perceptions of preparedness.

Theme Clusters

Further analysis of written responses to the free response item of the survey employing Colaizzi's (1978) procedures revealed four *theme clusters*. These clusters were *Practical workshops in EDPE units, Actually teaching PE or coaching sport, Programming and planning PE,* and *Different perspectives on PE.*

The first *theme cluster* was *Practical workshops in EDPE units.* This theme described learning experiences in EDPE units that required practical involvement in content strand workshops. Weekly practical workshops in *Dance, Gymnastics,* and *Games and Sports* are embedded in the core on-campus curriculum unit (EDPE214). For pre-service teachers studying EDPE941 off-campus, these workshops were offered during a residential school. Examples of *significant statements* from this *theme cluster* include:

- *"The many hours I received as an internal student face-to-face in the practical components of some of my lessons."*
- *"Doing the practical PE at Res/Intensive School helped greatly in building awareness and confidence in games, dance & gym – less daunting now."*
- *"All of the practical classes made me realise that the skills/expertise required to teach PE at primary level are not beyond me (nor too onerous) - encouraging."*

The *theme cluster,* termed *Actually teaching PE, or coaching Sport,* identified learning experiences in an EDPE unit that involved students in tasks of teaching or coaching. The *exhaustive description* of this theme identified tasks as peer teaching, coaching sport, and teaching K-6 during the specialist internship. Two examples of *significant statements* for this theme were:

- *"Peer teaching - it was really helpful to practically apply what we're learning."*

- *"Specialisation in PE during fourth year internship. Opportunity to program and implement PE lessons across K-6."*

Peer teaching is an assessment task adopted in the internal core curriculum unit EDPE214. A requirement of this task is that two students work together to write a unit of work in PDHPE for one stage of schooling and teach the skill development phase of a lesson to a class-sized group of peers. Opportunity to program and implement PE lessons from Kindergarten to Year 6 (K-6) for a period of four weeks is a learning experience afforded those students completing the PE specialisation practicum. This is a school-based experience where interns worked in pairs and were supported by regular visits by HPESS academics.

The *theme cluster,* namely *Programming and planning PE* described learning experiences that required students to plan and program for safe and effective learning in PDHPE. Two examples of *significant statements* for this theme were:

- *"Our major unit planning assignment in EDPE214. This helped me gain confidence and explore teaching on a more in depth level."*
- *"Having to create a four week program to do with a PE unit over the course of my internship. Gave me experience at programming and planning a PE program, as well as providing me with the opportunity to teach it and assess its success."*

At the university, pre-service teachers are required to complete a programming and planning task in partial fulfillment of the assessment for the core curriculum units (EDPE214 and EDPE941). Whilst there is some variation in this task between internal and external students, the basis of the task was to plan a unit of work in PDHPE that includes detailed lesson plans. Further, students selected for the specialist internship must program and plan four weeks of learning in PE across all stages of primary schooling.

Learning experiences giving d*ifferent perspectives on PE* were clustered together. The *exhaustive description* for this *theme cluster* included three perspectives, namely developmental, safety, and inclusive. *Significant statements* for each of these perspectives were:

- *"Understanding of different range of abilities & development within a class."*
- *"Growth and development of children K-6. The many differences of skills/skeletal age."*
- *"Embracing the Game Sense concept in combination with understanding the developmental stages of learning."*
- *"Teaching FMS prior to sport/game participation."*
- *"I feel in EDPE201 during the FMS [fundamental movement skills] activities I learnt how to assess students & got ideas of how to assess FMS in schools."*
- *"Knowing there are ways to be inclusive, positive and engaging so a positive experience can be gained for both students and teachers – the sessions we attended were so much less threatening than I feared."*

In summary, *theme clusters* emerging from manual analysis of survey data found that opportunities which contributed most to perceptions of preparedness were *Practical workshops in EDPE units*, *Actually teaching PE or coaching sport, Programming and planning PE,* and *Learning about different perspectives on Physical Education.*

To further investigate written survey responses pertaining to contributors to perceptions of preparedness, the text analytic tool Leximancer 3.07 (Smith, 2000) was used to identify and quantify themes and concepts. An advantage of applying Leximancer software to these data is that the content analysis is free of bias that may be leveled at results derived from manual coding. Results are reported as *Theme Circles* found in the concept map.

Theme Circles

In Leximancer, concepts are "collections of words that generally travel together throughout the text" (Smith, 2009, p.28). *Theme circles* are clusters of concepts shown on a concept map as coloured circles. Concepts and *theme circles* found from automated analysis of survey data pertaining to learning experiences that *contributed most to preparedness to teach primary school PE* are displayed in Figure 6.1.

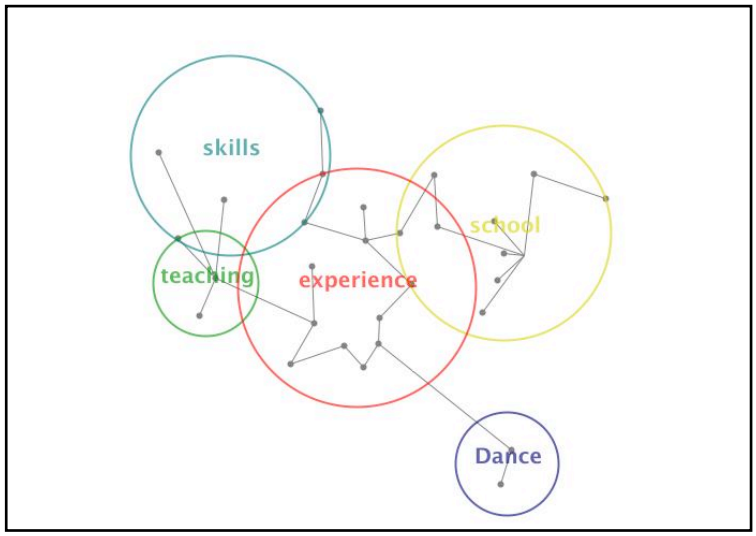


Figure 6.1. Concept map for learning experiences contributing most (survey)

Dominance of *theme circles* is evident by theme size and contextual clustering. As such, three *theme circles* dominate the concept map shown in Figure 6.1, namely *experience, school* and *skill*. As a natural gap in *theme size* (absolute counts and ranking) is visible, *teaching* and *Dance* were excluded as common contributors. These clusters were also more isolated from more dominant *theme clusters*.

The first dominant *theme circle*, namely *experience* (absolute count = 22; ranked concept = 1; 100%) contained the concepts *students* (count = 6, likelihood = 67%), *physical* (count = 4, likelihood = 50%), and *practical* (count = 6, likelihood = 46%). Inspection of the Leximancer log for this cluster of concepts revealed that experiences with students, physical and practical components of EDPE units, and professional experiences, were learning experiences that *contributed most to pre-service teachers' perceptions of preparedness.*

The next most dominant *theme cluster* was *school* (absolute count = 34; ranked concept = 2, 74%). This cluster contained the concepts *residential* (count = 8, likelihood = 73%) and *sport* (count= 4, likelihood = 50%). Inspection of the Leximancer log showed engagement with practical activities associated with the residential school, and assisting coaches with sport, were opportunities that pre-service generalist teachers reported which *contributed most to preparedness to teach primary school PE.*

The final *theme circle*, *skill* (absolute count = 12, ranked concept = 3, 70%) contained the concepts *sport* (count=2, likelihood= 25%), *different* (count=2,

likelihood=22%), *learnt* (count=2, likelihood=22%), and *coaching* (count=2, likelihood=22%). A log for this theme showed that learning about skill acquisition, and having opportunity to apply this knowledge, were opportunities that *contributed most to perceptions of preparedness to teach primary school PE.*

In summary, analysis of survey data using multiple methods for analysis suggests that major contributors to pre-service generalist teachers' perceptions of preparedness were university-based learning experiences. Of these experiences, practical opportunities to teach PE or Sport together with opportunity to experience primary school PE as a learner were dominant contributors. Whilst results reported in this section may be considered baseline for all participants in the study, sub-groups representing pre-service teachers with different amounts of university-based study in Physical Education were interviewed. Results from analysis of their responses are presented in the next section.

RESULTS FROM ANALYSIS OF INTERVIEW DATA

The *Interview Guide* included one question specifically designed to collect data about contributors to pre-service generalist teachers' perceptions of preparedness to teach primary school PE. The question, in two parts, read:

> Which opportunities have contributed MOST to your preparedness to teach primary school Physical Education? If the answer to the first question did not relate to an opportunity within an EDPE unit, a second question was asked: Which opportunity during your most recent EDPE unit has contributed most to your preparedness to teach primary school Physical Education?

Results from thematic analysis of these data are reported as *Themes, Theme Clusters,* and *Theme Circles.*

Themes

Seven themes related to *contributors* emerged from content analysis of word data collected at interview. Based on a natural break in frequency of occurrence in the data, *themes* were termed dominant or common. Results for *dominant themes* are shown in Table 6.3. Results for *common themes* have been reported previously. In both cases, *themes* are reported by number of participants providing a response linked to the same idea. *Sub-themes* are reported by number of occurrences of the idea in the text.

Table 6.3

Dominant Themes (Interview)

THEME	FREQUENCY	SUB-THEME (Frequency)
Teaching Physical Education/Sport	16	Teaching PE/Sport to Peers (8) • Team teaching to peers (4) • Peer teaching assignment (3) o Doing (2) o Watching (2) o Listening to feedback (2) Teaching PE/Sport to school-aged children (8) • Professional experience (5) • Internship (3)
Experiencing Physical Education/Sport in practical components of EDPE units	12	Content strand workshops (6) Participating in Sport (2) Residential school activities (3) Level O Sport Coaching activities (1)

Of the stratified sample of nineteen interviewees, nine had the opportunity to complete the peer teaching assessment embedded in the internal core curriculum unit (EDPE214); seven completed a sports coaching unit in which individuals or teams were coached; four had an opportunity to experience team teaching of the athletics event in the internal elective (EDPE201); and five experienced the specialisation internship and therefore taught school-aged children across all stages of schooling.

Two *dominant themes* in Table 6.3 are *Teaching PE/Sport* 84.2% (16/19) and *Experiencing PE/Sport in practical components of EDPE units* 63.2% (12/19). In addition to the identification of *dominant themes,* manual analysis of interview data also resulted in description of *common themes*. The five *common themes* presented in Table 6.4 show "fine grain" contributors to pre-service teachers' perceptions of preparedness to teach primary school Physical Education derived from analysis of interview data.

Table 6.4

Common Themes (Interview)

THEME	FREQUENCY	SUB-THEME (Frequency)
Programming and planning PE/Sport	8	Internship (4) Athletics carnival (3) Peer Teaching (2) Coaching (2)
Specific EDPE units	7	Internship (4) EDPE214 (2) EDPE201 (2)
Theoretical components of EDPE	6	Theoretical insights (3) Lectures/tutorials (2) Theory Assignments (2) Syllabus (1)
Observing others teaching primary school PE or Sport	4	Teachers (3) Sports coaches (2)
Lifestyle factors	4	Having own children (3) Active lifestyle (1)

A feature of these contributors is the preponderance of university-created experiences. The sole outlier to this trend was found to be *Lifestyle factors.*

In summary, results reported in this section derived from analysis of interview data suggest that opportunity to teach or experience PE/Sport *contributed most to pre-service teachers' perceptions of preparedness to teach primary school PE.* Primary sources of these opportunities were identified as both EDPE units of study and university-created professional experience/practicum. Analysis of interview data collected beyond and including the item specifically addressing contributors follows.

Theme Clusters

Manual analysis of interview data using procedures described by Colaizzi (1978) revealed four *theme clusters* pertaining to *contributors to pre-service teachers' perceptions of preparedness to teach primary school PE*. The first *theme cluster* termed *Relevant biography* described interviewees' life experiences beyond university that contributed to perceptions of preparedness to teach primary school PE. The exhaustive description revealed eight categories, namely

- experiences with primary school-aged children such as siblings, cousins or offspring;
- parental attitudes to PE or Sport;
- sporting lifestyle;
- personal experiences of school PE;
- experiences of coaching Sports;
- experience in allied areas;
- work experience in health-related fields; and
- preferred learning style.

Featured in these categories were experiences with people and events. People were primary school-aged children or those working in PE or related fields. Events included reference to personal experiences of Sport, Physical Education, or work in health-related fields.

The second *theme cluster* was *Sources of requisite knowledge.* In the context of teaching primary school PE, this theme described ideas about the origins of knowledge for teaching a personal conception of primary school PE. The *exhaustive description* for this theme revealed seven categories, namely:

- Self as a source of knowledge: awareness of own limits; reflections on personal experience of growing and developing, of school PE or sport, of teaching PE, of coaching sport or being coached.
- Other people outside the teacher education program as a source of knowledge: immediate and extended family (parents, siblings, cousins); friends and friends' children; primary school aged children; own children's teachers; and sports coaches.
- Experiences outside teacher education program as a source of knowledge: personal experiences of school PE during primary and secondary school; coaching or being coached sport; casual teaching; working in schools; working in health related careers; and movement-related modules in a first degree program.

- Other people inside the teacher education program as a source of knowledge: peers; lecturers; practicum supervising teachers; and other teachers in the practicum settings.
- Teaching experiences in EDPE units as a source of knowledge: lectures, practical sessions; residential school; and assignments (programming, FMS, Level O Sports Coaching accreditation or action research project).
- Observation as a source of knowledge**:** teachers in professional experience settings; sport coaches observed in partial fulfilment of EDPE 243/341/441 assignments; and peer teaching in EDPE14.
- Literature as a source of knowledge: prescribed text; www; syllabus and support documents; teaching resources; programs of other teachers; and notes/ handouts from university lectures or practical sessions.

Categories comprise knowledge sources within and beyond the university. Dominant sources of knowledge include self, others and teaching or PE/Sport related experiences.

Sources of requisite skills emerged as the third *theme cluster*. This theme represented interviewees' thoughts pertaining to sources of skills required to teach a personal conception of primary school PE. The *exhaustive description* revealed eight categories, namely:

- Lifestyle as a source of skills: playing or watching sport; interacting with family members (playing with younger children); babysitting; raising children; and student leadership in school (SRC, Peer Support Leader, Captaincy, tutor).
- Others outside teacher education program as a source of skills: community sport coaches.
- Training programs outside teacher education program: AustSwim; School In-service on behaviour management; and State Netball Camp.
- Experiences of teaching and coaching**:** trial and error.
- Others in the teacher education program as a source of skills: observation and/ or feedback from peers; classroom teachers; specialist PE teachers; sports coaches; and HPESS lecturers.

- EDPE Units: watching Pangrazi video; video analysis of FMS; doing PE and skills in practical sessions; observing others in practical sessions; writing lesson plans; residential school; and specialist component of internship (planning, teaching across stages).
- Other Curriculum units at UNE: Science; Maths; English; HSIE; and, EDLT 486 Module on explanation.
- Literature: syllabus and module document.

As was the case with sources of knowledge, sources of skill were also traceable to people and events within and beyond teacher education. People nominated were self and others. Events related to lifestyle and learning.

The final *theme cluster,* namely*, Most powerful pedagogy,* described interviewees' ideas pertaining to contributors to preparedness to teach primary school PE associated with the HPESS program. The *exhaustive description* for this *theme cluster* revealed three categories:

- EDPE practical sessions:
    - EDPE214/941 practical sessions in *Dance*, *Games and Sports*, and *Gymnastics*; physically doing what the children will do in PE in class-sized groups; experiencing PE from a learner's perspective; hands on experience; acquiring skills that were lacking.
    - EDPE201 athletics and FMS.
- EDPE assessment tasks:
    - EDPE214 peer teaching including preparation, teaching, watching peers teach, seeing pedagogy in action, listening to feedback on teaching, and reflecting on own practice.
    - EDPE201 FMS assignment.
    - EDPE201 working with a cohort to plan and deliver to peers a novelty event for a primary school athletics carnival.
- Specialist component of internship (4 weeks):
    - writing a K-6 PE program and actually teaching it to evaluate success or otherwise.
    - autonomy as teacher in these weeks.

These categories demonstrate that major contributors of the HPESS program were authentic experiences of either teaching or learning Physical Education.

Fundamental to the *theme clusters* described in this section are experiences of people and events both inside and outside their teacher education program. Contributing most to perceptions of preparedness were firstly, life experiences notably interacting with primary school-aged children and secondly, participation in Sport; practical sessions in EDPE units in *Dance*, *Gymnastics*, *Games and Sports*, FMS, Athletics or the specialist component of the Internship. Sources of knowledge to teach a conception of primary school Physical Education were self, others, and experience. Sources of skills include lifestyle, other people, training programs, EDPE unit, other curriculum units, experiences of teaching or coaching sport, and literature.

Theme Circles

Results from manual analysis of interview data have been reported in the previous section. The same data was entered into the automated text-mining software tool Leximancer (Smith, 2000). This strategy of employing mixed-methods for analysis sought to address issues of researcher bias that may be levelled at manual analysis. The concept map generated from further analysis is shown in Figure 6.2. Two *theme circles* dominate this map, namely *teach* and *teaching*. Due to the natural gap in the size and connectedness of the other *theme circles*, *prepared, experience,* and *teacher* were excluded from further analysis.

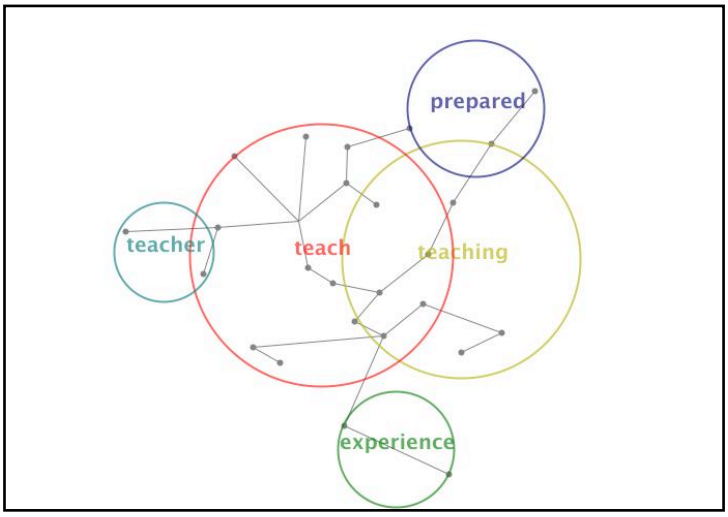


Figure 6.2. Concept map for learning experiences contributing most (interview)

The first *theme circle* that dominates Figure 6.2 is *teach* (absolute count = 34; ranked concept = 1; 100%). Further analysis showed that this circle contained the concepts *skills* (count = 8, likelihood = 47%) and *carnival* (count = 3, likelihood = 43%). Inspection of the Leximancer log for each emergent concept revealed that opportunities to teach skills (peer teaching, internship) and preparing to teach at the athletics carnivals (peer and team teaching in EDPE201) were learning experiences that *contributed most to pre-service teachers' perceptions of preparedness.*

The second dominant *theme cluster* was *teaching* (absolute count = 27; ranked concept = 2, 79%) which contained the concepts *learnt* (count = 5, likelihood = 42%) and *different* (count=7, likelihood = 30%). The Leximancer log showed contributors as: watching others either "peer teach" or coach sport; learning about programming, class organization and class management; programming PE for the internship; and, practical teaching experiences.

Dominant themes emerging from this automated analysis complement previously reported themes derived from manual analysis. Key contributors to pre-service generalist teachers' perceptions of preparedness to teach primary school PE are teaching PE/Sport and experiences of learning to fulfill teaching roles in the context of PE/Sport.

Triangulation of Results

Results reported in the previous two sections were triangulated to identify pre-service generalist teachers' perceptions of *major contributors to preparedness to teach primary school Physical Education*. Results from analysis of survey and interview data were further investigated to identify those *contributors* that firstly, emerged in both sets of results and secondly, were considered dominant.

Results from triangulation of results are depicted in Figure 6.3 as a set of interlocking gears. Each gear represents a major *contributor* to pre-service teachers' perceptions of preparedness to teach primary school PE. In descending order of size and dominance these contributors include *University-created Learning Experiences, Practical Experiences,* and *Tertiary Physical Education or Sport.*

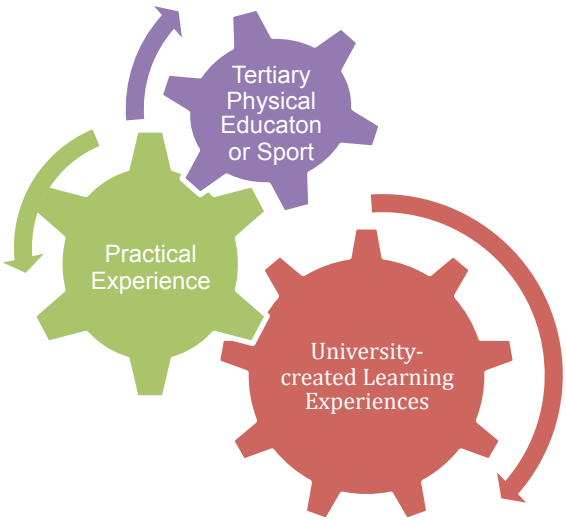


Figure 6.3. Major contributors to perceptions of preparedness

A consistent theme found through analysis of both survey and interview data was the predominance of university-created learning experience as *contributors to perceptions of preparedness to teach*. As such, this contributor is represented as the largest gear in Figure 6.3. Dominant learning experiences were practical experiences embedded in EDPE units of study pertaining to tertiary studies of Physical Education and/or Sport. Based on this evidence, this dominant and overarching contributor is juxtaposed in Figure 6.3 in a dynamic relationship with *Practical Experience* and *Tertiary Physical Education and Sport.*

Practical experiences identified by pre-service generalist teachers as contributors to perceptions of preparedness to teach were opportunities to fulfil roles and responsibilities of teaching to plan, program, schedule, teach/coach and observe Physical Education and Sport. These experiences were embedded in formal teaching (workshops; practical sessions), assessment tasks (planning, programming; peer teaching, team teaching, practice teaching) and enrichment activities (sports coaching accreditation; observations).

Tertiary Physical Education and Sport include opportunities to learn about multiple perspectives to PE/Sport; practical workshops in *Games and Sports*, *Dance, Gymnastics* and Athletics; professional experience in schools and sports coaching settings including opportunity to observe others teach PE or coach Sport.

CONCLUSION

Results reported in this chapter are summarised in this section and discussed in relationship to literature. The summary presents results under the headings:

RR6: Major contributors to pre-service generalist teachers' perceptions of preparedness to teach Primary School Physical Education were university-created learning experiences, namely:

- Units of study in tertiary PE
- Practical opportunities to plan, program, and teach Physical Education and Sport
- Practical opportunity to experience Physical Education and Sport

This result may be surprising given the chain of evidence in the literature that personal experiences of school (Lortie, 1975) are a "stronger" socialising agent into teaching than pre-service training, preparation or education (Curtner-Smith, 1999; Lortie, 1975; Zeichner & Tabachnik, 1981), Further, that teacher-training may be unsuccessful in modifying beliefs (Carney & Chedzoy, 1998; Kagan, 1992; Rovegno, 1993; Tabachnick & Zeichner, 1984; Weinstein, 1988).

RR7: Major contributors to perceptions of preparedness associated with core units of the HPESS program included practical sessions oriented to the syllabus content strands of *Dance, Games and Sports, Gymnastics* and assessment tasks required of the core unit of study. For elective units, major contributors were advanced study of *Fundamental Movement Skills*; working collaboratively in a team to plan sporting events; and, the specialist component of the internship.

RR8: Life experiences beyond university with people and events were sources of requisite knowledge and skill to teach PE. These experiences were also found to be contributors to perceptions of preparedness.

These results are consistent with studies of pre-service teacher biography suggesting "prospective physical educators do not bring tabula rasa to formal professional training programs" (Crum, 1990, p.287). Pre-service teachers prior knowledge and experiences impact on their learning during teacher education (Rovegno & Dolly, 2006, p.254)

In summary, these results suggest that from the perspective of pre-service teachers in this study, the *major contributor to perceptions of preparedness to teach primary school PE* was the practical opportunity to plan, program, teach and/or experience Physical Education and Sport. This result was consistent for analysis of both survey and interview data and for triangulation of results. The practical opportunities described by participants presented strong and consistent evidence that these opportunities were traceable to university-created learning experiences. Those experiences were units of study with different perspectives to PE/Sport. That is, EDPE units of the HPESS program.

In discussing these results, it is apparent that major contributors to generalist student teachers perceptions of preparedness found in this study are different from those reported for specialist teachers in PETE literature. For specialists, personal experiences of school PE and Sport are so powerful that experiences of initial teacher education may have minimal influence. Arguably, pre-service generalist teachers' personal experiences of school PE and Sport are not sufficiently powerful to override experiences of tertiary Physical Education. Consequently, pre-service experiences of initial teacher education programs of study are major contributors to perceptions of preparedness.

The next chapter, Chapter Seven, presents results and discussion related to the question of *Transforming Pre-service Teachers Perceptions of Preparedness to Teach Primary School Physical Education.* This transformation emerged as an outcome of the strategy of increasing opportunity to study tertiary Physical Education during University-based Teacher Education.

CHAPTER SEVEN

TRANSFORMING PERCEPTIONS OF PREPAREDNESS TO TEACH PRIMARY SCHOOL PHYSICAL EDUCATION

This chapter addresses the question of increased tertiary study of Physical Education with respect to concerns for teachers' perceptions of preparedness to teach primary school Physical Education. The chapter is organised into three sections. The first section presents *Results from Analysis of Survey Data.* The second section presents *Results from Analysis of Interview Data.* The chapter concludes with a *Synthesis of Results*.

RESULTS FROM ANALYSIS OF SURVEY DATA

Reported in this section are results from analysis of survey data pertaining to pre-service teachers' perceptions of preparedness to teach primary school PE with increased study of tertiary Physical Education. Results in this section are outcomes of bi-variate analysis.

Bi-variate Analysis

Survey data were placed in cross tabulation to investigate identifiable advances for pre-service teachers associated with increased study of Physical Education. Results are reported for *Number of EDPE units of study, Learning in EDPE units,* and *Type of EDPE unit (core vs. elective).*

Number of EDPE Units

The PTPEPS survey invited participants to indicate using a tick, the EDPE units completed in their teacher education course. These data were used to group participants into a stratified sample. Groups consisted of participants who had completed: *Any one EDPE unit*, *Any two EDPE units,* or A*ny three or more EDPE units.* These groupings were used to generate cross tabulations with data pertaining to aspects of pre-service teachers perceptions of preparedness to teach primary school PE.

The result for cross-tabulation for the frequency distribution of *number of EDPE units* and frequency distribution of *preparedness to teach primary school PE* revealed differences (c2 (N=393)=10.466, p=.005) significant at the p=.005 level. Strength of association based on interpretation of Phi = 0.163 was small. Differences expressed by frequency distribution and percent are shown in Table 7.1.

Table 7.1

Differences in Frequency Distribution of Responses by Number of Units

Number of EDPE units	Frequency Distribution	Percent
Any one	176/221	79.6
Any two	67/77	87.0
Any three or more	89/95	93.7

Results show that the percentage of pre-service teachers feeling prepared to teach primary school PE increased marginally with increased number of EDPE unit completions. In discussing these results, the strategy of increasing PSTE-PE has a modest potential to address concerns for these teachers perceptions of preparedness to teach primary school PE.

Learning in EDPE Units

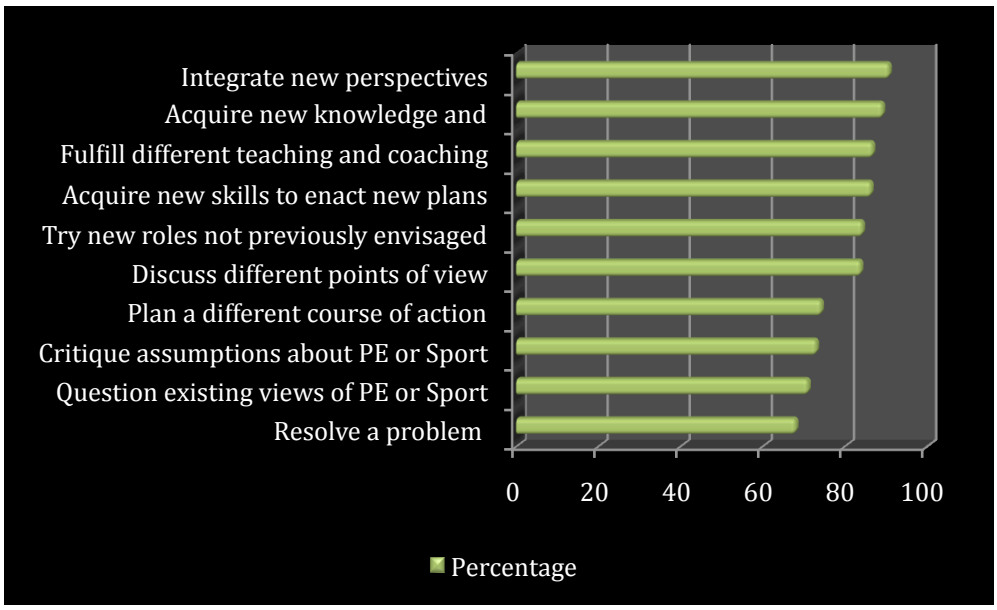
One sub-section of the researcher-developed survey instrument contained ten parts (see Appendix E, Section 2, Item 20) designed to measure learning experiences of pre-service teachers in their most recent EDPE unit. Respondents were invited to indicate their level of agreement on a 6-point scale with items framed on Mezirow's (1978) ten-step description of transformative learning.

A chi-square Goodness-of-Fit test established that frequency and frequency distributions of responses to all ten items were statistically significant at the p=.000 level. Results from this statistical test indicate that pre-service teachers' agreement to survey item statements was not due to chance.

Frequency of pre-service teachers' responses expressed as a percentage of valid responses for each step of learning is shown in Table 7.2. Results were arranged by descending percentage of agreement.

Table 7.2

Percentage of Pre-service Teacher Responses for Steps of Transformative Learning



As shown in Table 7.2, the majority of pre-service teachers participating in the study agreed that their last PE unit of study required them to experience processes involved in each of Mezirow's (1978) steps of transformative learning. Of the ten-steps, the highest frequency of respondents 90.75% (353/389) agreed that learning experiences of the most recent unit required them to *Integrate new perspectives into my practice.* The second highest frequency of respondents 350/393 (89.1%) agreed with the statement that the unit required the to A*cquire knowledge and understanding needed to enact new perspectives on PE or sport.* The third highest were 339/391 (86.7%) respondents who agreed that in the last EDPE unit they were required to *Build the confidence and competence required to fulfill different teaching and coaching role.*

When frequency distributions for steps of transformative learning were placed in a 3-by-2 cross tabulation with frequency distribution for two categories of response for feeling prepared to teach primary school PE (i.e. prepared and unprepared), nine steps were significant at p< 0.005 level. Steps reported in decreasing order of *Effect Size* (*ES*), required pre-service teachers to

- fulfil different teaching and coaching roles (c2 (1, N=386)=47.6, p=.000), ES=0 .351;

- resolve a problem of contemporary PE or Sport (c2 (1, N=381)=26.8, p=.000); ES=0 .265;
- discuss different points of view (c2 (1, N=389)= 19.28, p=.000), ES=0.223;
- acquire the knowledge and understanding needed to enact new perspectives on PE or sport (c2 (1, N=387)=15.2, p=.000), ES= 0 .198;
- plan a course of action that was different to my previously held plans (c2 (1, N=380)=14.2, p=.000), ES=0 .194;
- integrate new perspectives into my practices (c2 (1, N=384)=14.3, p=.000, ES=0 .193;
- acquire new skills that would be needed to enact new or different plans of action (c2 (1, N=384)=9.9, p=.002), ES=0.160;
- critique assumptions I held about PE or Sport (c2 (1, N=387)=8.51, p=.001), ES=0 .148; and
- try new roles in teaching PE or coaching sport that I had not previously envisaged (c2 (1, N=382)=7.7, p=.005), ES=0 .142.

Learning experiences of EDPE units requiring pre-service teachers to fulfil different teaching and coaching roles were found to have a medium effect size with feelings of preparedness. All other steps of transformative learning had small effect size with feelings of preparedness.

To further investigate steps of transformative learning associated with feelings of preparedness, data for frequency distribution of responses were placed in cross tabulation with data pertaining to *Number of EDPE units completed.* Five learning experiences, listed in decreasing strength of association, were identified. These learning experiences required pre-service teachers to

- critique assumptions of PE or Sport (c2(5, N=392)=16.805, p<.000) with Phi =.207. Of 392 survey responses, the highest percentage of students 87.0% (67/77) who critiqued assumptions had completed two EDPE units. The second highest percentage 73.9% (164/222) completed one unit, and 59.1% (55/93) three or more units;

- question existing views of PE or Sport (c2(5, N=393)=10.466, p<.005) with Phi =.163. Of 393 survey responses, the highest percentage of students 81.8% (63/77) who critiqued assumptions had completed two EDPE units. The second highest percentage 74.8% (59/77) completed one unit and 53.2% (50/94) three or more units;
- discuss different points of view (c2(5, N=395)=10.140, p<.006) with Phi = .160. Of 395 survey responses, the highest percentage of students 93.5% (72/77) who discussed different points of view had completed two EDPE units. The second highest percentage 87.4% (83/95) completed three or more units, and 78.9% (176/223) one unit;
- acquire knowledge and understanding needed to enact new perspectives (c2 (5, N=393)=7.484, p<.024) with Phi = .138. Of 393 survey responses, the highest percentage of students 97.4% (74/76) who acquired knowledge had completed two units EDPE units. The second highest percentage 89.5% (85/95) completed three or more units, and 86.0% (191/222) one EDPE unit; and
- plan a new course of action (c2 (5, N=384)=5.772, p<.056) with Phi = .123. Of 384 survey responses, the highest percentage of students 85.1% (63/74) who planned new courses of action had completed two EDPE units. The second highest percentage 72.0% (157/218) completed one unit, and 70.7% (65/92) three or more units.

Effect size measured using Phi indicates medium strength of association between critiquing assumptions of PE or Sport and number of EDPE units completed. All other learning experiences reported small effect size with number of units.

Analysis of data provided evidence that increased opportunity to study Physical Education is moderately associated with the increased opportunity for pre-service teachers to engage in steps of transformative learning. Further, of three categories for study of Physical Education, (namely one, two, and more than three units of study) completion of two units of study was associated with highest percentage experiences of steps of transformative learning. Of steps of transformative learning, opportunity to question views and critique assumptions related to PE or Sport was most strongly associated with increased study of tertiary Physical Education.

In summary, results suggest that increased Primary School Teacher Education-Physical Education (PSTE-PE) has addressed concerns for pre-service teachers perceptions of preparedness to teach primary school PE by providing greater opportunity for transformative learning. Of the opportunities afforded to pre-service teachers, two or more units of study of tertiary Physical Education were deemed sufficient to identify steps of transformative learning.

Type of EDPE Unit (Core v. elective)

Units of study in Physical Education (EDPE) offered at the university were classified as either core curriculum units or elective units. When type of unit was placed in cross-tabulation with *feeling prepared to teach primary school PE*, completion of a core unit was found to be more strongly associated (c2, (1, N=315, p.000) with *feelings of preparedness* than completion of elective units. Of 315 pre-service teachers who had completed a core curriculum unit, 89.5% (282/315) felt *prepared to teach primary school PE*. Of those who completed a core unit, the highest percentage of pre-service teachers feeling prepared namely 93.9% (138/147) completed the internal core unit (EDPE214) with 6.1% (9/147) who felt *Unprepared.* Differences (c2 (1,N=147)=15.822, p=.000) were significant at the p=.000 level.

Results from analysis of survey data collected using Likert scales were supported by data collected employing an open response survey item related to learning experiences *Contributing most to feelings of preparedness.* Thirteen respondents identified a specific EDPE unit. Of these, 30.8% (4/13) identified EDPE units generally, 30.8% (4/13) identified the external core curriculum unit (EDPE941), 23.1% (3/13) the second of three elective sports coaching units (EDPE340/341), 15.4% (2/13) the first elective sports coaching unit (EDPE143/243), and 7.7% (1/13) for each of the internal elective curriculum unit (EDPE201) and *Health Promotion* (EDPE443). These results complement findings that firstly, EDPE units are a major contributor to pre-service teachers perceptions of preparedness, and secondly, core units of study are important to advance feelings of preparedness.

Core curriculum units were designed by the HPESS team to provide both internal and external pre-service teachers with a syllabus perspective on the teaching of Physical Education in the primary school. A Key Learning Area curriculum framework and outcomes-based syllabus informed the design of these units. On the

other hand, elective units of study were designed to introduce pre-service teachers to perspectives of primary school PE other than a curriculum or syllabus perspective. Results from this study provide evidence that core units of study in Physical Education had greatest potential to advance these teachers' perceptions of preparedness. Additional elective units of study complement the core units to further advance or provide a frame of reference for further study of tertiary PE.

In summary, results from bi-variate analysis of survey data, identified two means by which increasing PSTE-PE may address pre-service teachers perceptions of preparedness to teach primary school PE. The first means was the opportunity to engage further in transformative learning. The second was identification that completion of two units of study including a core unit advances transformation of assumptions, points of views, and knowledge required to plan and enact new perspectives on PE or Sport. Essentially, increased PSTE-PE affords pre-service teachers opportunity for perspective transformation pertaining to PE and Sport.

RESULTS FROM ANALYSIS OF INTERVIEW DATA

Reported in this section are results from analysis of interview data related to addressing concerns for pre-service teachers' perceptions of preparedness to teach primary school PE associated with increased study of tertiary Physical Education. Results are reported for *Learning as Transformation, Conceptions of Primary School Physical Education,* and *Commitment to Physical Education.*

Learning as Transformation

Evidence from interview data supported results from the survey data that learning-to-teach PSPE involves transformative learning. Four examples of entries by pre-service teachers are provided. The first example, illustrates a pre-service teacher who questioned existing views of Physical Education to integrate a new perspective of the relative importance of PE to other curriculum areas. Jess shared the following views at interview:

- *I didn't really see it (Physical Education) as a big thing like English and Maths, but now I believe it should be like English and Maths and it should be taught well.*

The second example Kathy questioned existing views of herself having acquired new knowledge and skills at the residential school. These opportunities enabled her

to integrate new perspective of herself as a future teacher of Primary school PE. Kathy stated:

- *... before the residential school I was thinking - how on earth am I ever going to, because I am not an active person, I don't play any sport and I haven't since I left high school and I am 36 but I left the residential school thinking - I can teach Physical Education in a primary school!*

Like Kathy, Connor had an opportunity to acquire new knowledge and understanding of PE in an EDPE unit that was a catalyst for him to question existing views. On completion of the elective unit of study, named EDPE201, Connor said:

- *... knowledge that I have gained across the whole unit alone is relevant and has changed - like modified - my thinking to what teaching PE is all about.*

The final example, Maya, identified a problem of contemporary school Physical Education following increased study of tertiary PE. Maya said:

- *... my view of Physical Education is probably a little bit more holistic and integrated than other peoples ... what I've seen in schools is different from how I'd like actually to teach it (Physical Education) myself... my perception actually doesn't fit with a lot of schools' perceptions.*

Maya recognized that her views of primary school Physical Education may be different to those expressed by service teachers. Resolution of these differences is an issue that Maya envisages will be necessary to "fit in" at school.

Extracts cited in the previously presented four examples provide further evidence that learning experiences sourced to EDPE units have transformed student teachers perspectives of issues related to primary school PE and Sport. Further that these transformations may be associated with increased opportunity to study tertiary Physical Education.

Conceptions of Primary School Physical Education

Four different conceptions of PE have been presented in Chapter Five that described pre-service teachers reference points for perceptions of preparedness to teach primary school PE. Conceptions were termed child development, skill acquisition, active lifestyle and healthy lifestyle. Further investigation of these conceptions

involved describing these teachers' personal conceptions of PSPE relative to increased study of PE.

Nineteen pre-service teachers were interviewed for this study. Ten of these participants had completed one core unit only (i.e., EDPE214 or EDPE941), four had completed one core and one elective unit namely (i.e., EDPE214 + EDPE201), and, five had completed one core unit, four elective units and the specialist fourth year practicum. As such, three categories of increased PSTE-PE were represented in this stratified sample of pre-service teachers, namely those with one, two, and four units of study.

One Unit of Study

Pre-service teachers completing one unit of study in Physical Education hold conceptions for PSPE oriented predominantly to promoting active and/or healthy lifestyles. Whilst pre-service teacher responses were coded as *active lifestyle* or *healthy lifestyle* to acknowledge the dominance of one theme over the other, themes frequently coalesced to form a consistent pattern. Examples of coalescence found in *significant statements* (Colaizzi, 1978) pertaining to conceptions of primary school Physical Education included:

- *... teaching children how to be physically active and teach them how being physically active is healthy for them… it can be all about a healthier lifestyle. (Katrina)*
- *... children being active and learning how to stay active throughout their lives and the health that is around being active. (Nikki)*
- *... it encompasses physical activity, health, wellbeing, ... and how they relate physical activity in their lives. (Kathy)*
- *... promoting more of a healthy, active lifestyle. (Megan)*

In NSW, the notion of active, healthy lifestyle is a syllabus aim for the Key Learning Area known as PDHPE. Consequently, for core curriculum units of study in PDHPE at tertiary level, the notion of promoting active and healthy lifestyle is central. This link between school and tertiary Physical Education may help to explain why pre-service teachers having completed study in a core PDHPE unit, were oriented by discourse related to *lifestyle.*

An exception to the pattern describing association between study of one core unit PE and conceptions of primary school PE oriented to promotion of active and/or healthy lifestyle was Scott. This pre-service teacher described primary school PE as "preparing children for participation in Sport with a focus on mastery of Fundamental Movement Skills (FMS)." Unlike other pre-service teachers completing only the core curriculum unit in PDHPE, Scott had extensive experience as a hockey coach.

Two Units of Study

Pre-service teachers with two units of study in tertiary PE continued to hold conceptions of PE related to healthy and/or active lifestyle but also showed emergence of conceptions related to skill development. For example, Adele viewed primary school PE as:

- *... purely based on movement. Not just how we move, mastery skills but the use of movement, quality of movement and how to apply movement in different situations.*

Unlike Scott, Adele had completed an elective unit of study in PE that included a module on teaching Fundamental Movement Skills culminating in application to a simulated School Sports Carnival.

A further emergent conception of PE was offered by Connor, who in answer to the question, "What is primary school Physical Education?" offered the following point of view:

- *... a focus on the physical body but it is important in regards to PDHPE that it works from the whole person ... PDHPE develops everything in the child's life ... it gives them all of those choices as to how to develop as a human.*

Connor described PSPE in terms of liberating the whole person by helping children take responsibility for their own learning of mind and body. Connor considered himself to be an elite sprinter with experience of being coached in athletics and coaching youth athletes.

Four Units of Study

Pre-service teachers with four unit completions and experience of the specialist practicum identified three conceptions for PE. Promoting active, healthy lifestyles

perpetuated with the viewpoints of two interviewees. For example Eliza's conception of PSPE was:

- *... all about promoting healthy and active lifestyles leading to better all over wellbeing.*

A further emergent conception was "child development". To reiterate, this term is frequently used in teacher education to refer to the typical stages of growth, development and maturation of children.

- *... primary school physical education from my point of view is taking kids through developmental processes. So taking them through fine and gross motor skills all the way through to ... personal health choices. (Alicia)*
- *... looking from the syllabus point of view you need the skills – you need to be able to mark off "yes they can do this"; from a political point of view everyone wants to see them out and doing some activity but from my personal point of view, I think it is incorporating them (perspectives) all. (Maya)*

Perspectives informing Maya's point of view included notions of the health and wellbeing of children, their personal development and ability to participate in regular physical activity through programs of skill acquisition.

Conceptions of primary school PE derived from nineteen interviewees were mapped against the number of units of study completed by them. Table 7.3 shows the results of this mapping.

Table 7.3

Personal Conceptions of Primary School PE by Increased PSTE-PE

Increased PSTE-PE (units of study)	Child Development	Skill Acquisition	Active Lifestyle	Healthy Lifestyle
One		Scott	Kim Selena Nikki Nick Kristy Sophie	Katrina Kathy Maya Megan
Two	Connor	Adele		Jess Nicole
Four and specialist practicum	Alicia Maya		Erica	Eliza

The four conceptions, namely, *Child Development, Skill Acquisition, Active Lifestyle, and Healthy Lifestyle,* were identified from analysis of data employing Colaizzi's procedures. The measure for increased Primary School Teacher Education - Physical Education (PSTE-PE) was the number of units of study completed.

To report results for conceptions of primary school PE presented in Table 7.3, a schema was developed to show the association between student teachers' personal conceptions of PSPE and increased PSTE-PE. This schema is shown in Figure 7.1. The arrow on the horizontal axis shows the increased number of completions of tertiary PE units of study. Data displays above the arrow show themes for conceptions of Primary School PE identified through analysis of data.

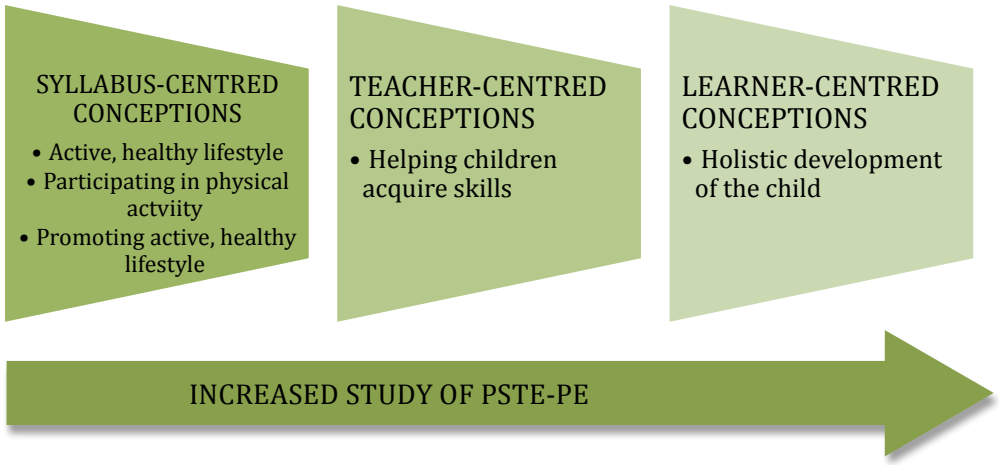


Figure 7.1. Schema emerging for conceptions of school Physical Education with increased study of tertiary Physical Education

This description indicates that increased opportunity to study Physical Education during initial teacher education has a potential to shift pre-service teachers' conceptions of primary school PE from syllabus-centred to more learner-centred viewpoints. Whilst individual pre-service teachers (e.g., Scott and Connor) may represent exceptions to this trend, cohorts of these teachers completing core curriculum units may typically occupy positions at the subject-centred end of the continuum. Cohorts of pre-service teachers completing one or more elective units of study in Physical Education in conjunction with a core unit of study are more likely to be positioned toward the learner-centred end of the continuum.

Discussions of the findings of three conceptions of primary school Physical Education across all categories of increased study in PSTE-PE are consistent with literatures describing "conceptual confusion" (Kirk, 2006, p.3) and competing struggles between discourses (Kirk, MacDonald & Tinning, 1997) for Physical Education. Reflected in pre-service teachers' conceptions are each of five conceptions described by Crum (1992, 1994): biological (training-of-the-physical), pedagogical (education-through-movement), personalist (movement competency and identity), conformist (character building) and critical constructivist (competencies required for a movement culture). Given that all conceptions are not represented at each category for increased study, an outcome of the strategy of increasing PSTE-PE may be an opportunity to transform conceptions of PSPE.

Most Powerful Pedagogy

A *theme cluster* emerging from analysis of interview data was termed, *Most powerful pedagogy.* This cluster described interviewees' ideas about what contributed most to preparedness to teach primary school PE. This theme was further investigated to identify pedagogies employed only in elective units. By definition, these pedagogies were accessible to pre-service teachers only through increased study of tertiary Physical Education.

The *exhaustive description* for the *theme cluster* termed *Most powerful pedagogy,* included EDPE Practical Sessions generally, EDPE assessment tasks generally, and specific experiences from core and elective EDPE units. Three examples of powerful pedagogy accessible only to pre-service teachers with increased PSTE-PE were identified. Listed in the order of study, pedagogies were

- advanced assessment of *Fundamental Movement Skills* (FMS) associated with practical sessions and assignment for EDPE201;
- working collaboratively to plan and deliver to peers a novelty event for a primary school athletics carnival in EDPE201; and
- specialist component of internship (4 weeks): given autonomy as teacher to write, teach and evaluate a K-6 PE program.

From the perspective of pre-service teachers who had engaged with pedagogies from both core and elective units in tertiary Physical Education, these three pedagogies were deemed to have contributed most to perceptions of preparedness.

Commitment to Physical Education

Student teachers' *Commitment to Physical Education* in primary schools emerged from analysis of interview data as a further *theme cluster*. Two aspects of commitment were firstly, *Hypothetical commitment* recognising differences between the status quo in a school and ideal practices of PE, and secondly, *Commitment to change* the status quo to practices perceived by pre-service teachers to be "more ideal."

Hypothetical Commitment

The HPESS Interview Guide included a plausible scenario, whereby:

> After graduation, you are posted to a primary school in which the practice of Physical Education is very different to your own. In as much detail as possible: Describe what these differences may be. What you would do to address this situation?

Analysis of data collected from this question employing Colaizzi's (1978) procedures revealed a *theme cluster* termed *Perceived Differences.* This *theme cluster* described ideal characteristics of PE programs, namely importance of PE, flexibility and inclusivity, foci for pupil learning including enjoyment, achievement and skill application, and teaching approach. The *exhaustive description* for this theme included nine categories. Each category provides description for polar opposite points of view.

Categories for the theme *Commitment to change* related to characteristics of PE programs included

- PE as important as opposed to unimportant; Time rich allocations to PE as opposed to time poor;
- flexible response to students PE needs as opposed to rigidly structured and timetabled programs;
- structured, teacher-led program as opposed to *ad hoc* provision of opportunity for children to "simply move;" and
- gender-neutral (co-educational) programs of primary school PE as opposed to gender-based (segregated) programs.

Foci for pupil learning were

- engagement with practical aspects of PE as opposed to "just theory"; integration of theory and practice as opposed to just practice; actually practice PE as opposed to "chalk-n-talk"; PE oriented to holistic view of children as opposed to simply attending to the physical;
- enjoyment as opposed to striving for absolute best;
- skill application as opposed to sole emphasis on skill acquisition; and
- Value for all-around achievement as opposed to sole attention to academic achievement; Sporting achievement respected as opposed to discounted.

The final category related to teaching approach for primary school Physical Education.

- Whole school skills program as opposed to eclectic class teacher approaches; Integrated approach to PDHPE as opposed to segmented approach; Common practice of PE across teachers at a school as opposed to eclectic approaches.

With respect to characteristics of PE programs, pre-service teachers with one unit of study identified structure and time allocation as dominant characteristics. By comparison, pre-service teachers with increased study of PE identified flexibility to respond to student needs and interest. With respect to foci for student learning, pre-service teachers with one unit of study tended to have a single focus when compared to pre-service teachers with increased study described multiple foci. Finally, increased study appeared to influence team teaching approaches to Physical Education as opposed to approaches by a single teacher.

In summary, increased PSTE-PE advanced pre-service teachers' projected commitment to teaching primary school Physical Education by advancing ideas pertaining to characteristics of PE programs, foci for student learning and teaching approach.

Commitment to Change

A further *theme cluster* emerging from analysis of interview data, termed *Commitment to change* included interviewees' ideas about strategies to change an established practice of PE found in a primary school to a perceived "ideal state". The *exhaustive description* of this *theme cluster* revealed nine categories:

- Initially just "go with the flow", "get on board" with what the school already does for PE.
- Request a school staff in-service on PE.
- Ensure quality PE for my class.
- Model quality PE with my class so other teachers can see it and become interested.
- Work with sister/brother class or other classes in the same Stage.
- Help to write and implement Stage programs.
- Help to write and implement Whole School or K-6 Programs.
- Work with teams of teachers to realise a vision for PE.
- Eventually initiate change across primary schools.

The list has been arranged to show a continuum of change management strategies. At one end of the continuum are those pre-service teachers who would conform to existing practices even though they may be very different to their own. At the other end of the continuum were ideas for change for all primary schools.

Content analysis of interview data used to identify the *theme cluster Commitment to change* revealed three foci. The first focus was teacher commitment to change practices of PE solely with their own class. Seven of nineteen interviewees described this commitment. Three examples of responses together with EDPE units are provided to illustrate this commitment.

- *You have to put your own class first I suppose and make sure they get the best opportunities. (Katrina, EDPE214 only)*
- *... addressing it within my own class for a start. (Maya, EDPE941 only)*
- *... in my first three or four years I probably wouldn't do anything. I'd be looking after my own class. (Selena, EDPE941 only)*

Typically, interviewees expressed concern for inequities that prioritising one's own class would create for children in other classes. These participants cited the strategy of appealing to school leadership (e.g., Principal) to address this concern. Class-oriented professional practice represented commitments of pre-service generalist

teachers having completed only one unit of study in PE, namely core curriculum units.

Responding to change as an individual within a class or classroom context is akin to Alexander, Rose and Woodland's (1992, para 146) notion of the *Generalist Teacher*. That is, teaching a class of primary school-aged children all aspects of curriculum and making no claim to "specialist subject knowledge for consultancy".

The second focus for improving professional practice for PE in schools, identified from interview data, was commitment to fulfil teaching roles by making connections with other teachers. Of nineteen interviewees, four cited collaborative strategies. Examples from each participant are listed in the following dot points.

- *... introduce your ideas, beliefs and practices very slowly to the staff, you get at least one staff member on side, then you can trial it with the students. (Adele, EDPE214 + 201)*
- *... start in my own classroom ... where you are in charge of the whole class for a whole week..., then try and incorporate the Stage group or class next door... then of course get involved in like whole school planning. (Connor, EDPE214 + 201)*
- *... probably change that (*conception of PE found in school*) within my own class ... make as much time, program ... talk to the other Stage teachers as me. (Jess, EDPE214 + 201)*
- *Just teach it (skill-based program of PE) within the classroom with the students I have... put forward a program so that way each Stage group or Year group has a skill that they build on in one year. (Nicole, EDPE214 + 201)*

All four pre-service teachers cited in these examples had completed two units of study in Physical Education. The first unit, EDPE214 was the internal, core curriculum unit. The second unit, EDPE201 was the first elective with a focus on advanced teaching of primary school PDHPE. Learning experiences and outcomes of the unit of study EDPE201 focused on advantages and disadvantages of team teaching approaches.

Collaborative professional practices identified in the data are consistent with the notion of *The Generalist/Consultant* (Alexander et al. 1992*)*. Teachers conforming to this role "combine a generalist role in part of the curriculum with cross-school coordination, advice and support in one or more subjects" (Alexander et al. 1992, para 146).

The third focus was commitment to Physical Education as a school subject. When faced with disparate practices of PE to their own, four interviewees suggested that they were prepared to act as a consultant, leader or advocate for PE within or across schools. Five examples of this commitment were:

- *If you go about your business, people will start asking questions.* (Kathy, EDPE941 only)
- *Actually start doing it with my own class – actually programming for PDHPE lessons in my program and actually get that up and running before I make any huge proposals. I think it is actually important for people to be able to see it actually working. ... encouraging other teachers to do the same ... how it can impact the rest of the schooling program and the rest of the KLA's. (Alicia, 4 x EDPE units + specialist practicum)*
- *If I was a specialist in a school or even if I was a general classroom teacher but was sort of the sporting authority in the school that people came to see I guess you could have a staff development day, or, offer to take some other classes if you can work it out somehow in the timetable ... you take mine for this amount of time and I'll take yours out to do physical activity or 'this term I'll take this class, this class and this class along with mine. Then next term you swap… If I were just the specialist teacher (of PE) you have to work in with other staff timetables. (Eliza, 4 x EDPE units + specialist practicum)*
- *I would probably go so far as to even write a continuum for the whole school and sort of put it to them ... You would try to make it as easy for the school as you could to make the change. (Erica, 4 x EDPE units + specialist practicum)*
- *If I had support I think I could be fairly confident in leading a team (of teachers). (Maya, 4 x EDPE units + specialist practicum)*

Fielding questions, leading teaching processes e.g., programming, negotiating flexible staffing arrangements and subject leadership are examples of consultative and specialist roles surpassing the expectation of generalist teachers. Four of the five participants cited above had completed the maximum teacher training in PE offered to on-campus pre-service teachers at the university. The other participant, Kathy was a mature aged, off-campus pre-service teacher who had worked previously in a related profession, namely, health promotion. Kathy had completed the minimum PE requirement for her Degree program.

Commitment to consultative and specialist teaching tasks conform with descriptions for the roles of *The Generalist/consultant, The Semi-specialist* or *The Specialist* proposed by Alexander, Rose and Woodland (1992). According to these authors, generalist/consultants teach the curriculum to their class together with offering consultative advice to other teaches about an aspect of curriculum. Kathy personified this role. Alicia, Erica and Maya provided examples of the semi-specialist who teaches his/her subject, but also generalist and/or consultancy roles. Finally, Eliza's response exemplified *The Specialist* who teaches his/her subject full-time to classes across the school.

When findings for the *theme cluster* termed C*ommitment to change* were mapped to categories for *Number of units of study*, a pattern emerged. This pattern, shown in Figure 7.2, shows shifts in pre-service teachers foci for intended plans and actions with increased PSTE-PE.

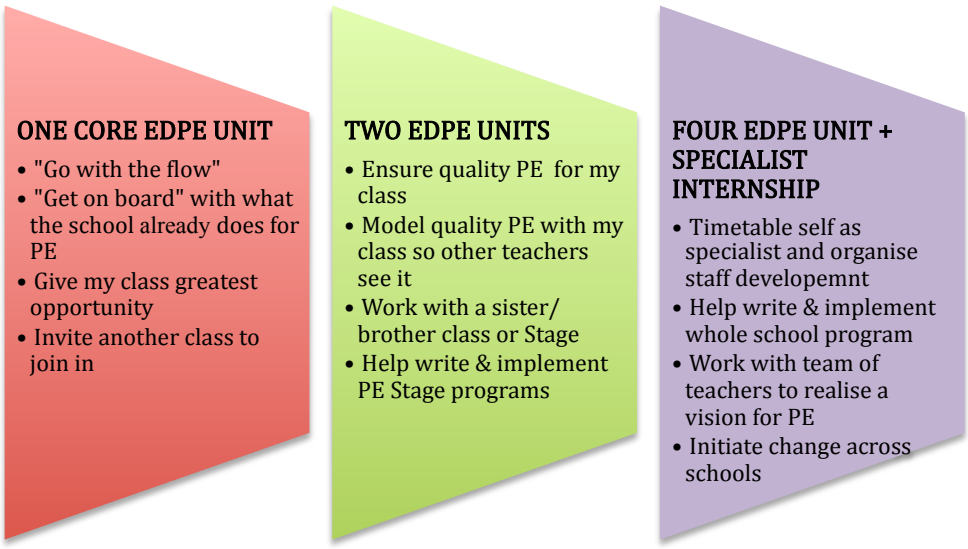


Figure 7.2. Commitment to primary school PE across the innovation

The scope for intentions for primary school Physical Education shown in Figure 7.2 range from compliance with the "status quo" in a school, through to intentions for systemic change across schools.

Completion of one core EDPE unit was associated with commitment to comply with established plans and practices of PE at the school level. Any dissonance with this commitment would be addressed by ensuring quality provision to one's own class. Completion of two EDPE units was associated with commitment to the dual purpose of provision of quality PE at the class level and modelling quality PE to other teachers in the school. Greater specialisation gained through completion of four EDPE units and a specialist internship was associated with greater advocacy for a personal vision for PE in the primary school, a willingness to innovate, and provision of leadership. Intended leadership included writing and implementing quality PE programs for three levels of schooling, namely, stages, whole school, and, school systems.

Based on the schema found in Figure 7.2, increased PSTE-PE appears to be an effective strategy to address pre-service teachers' commitment to Physical Education. Increased PSTE-PE appears to shift these teachers' *commitment to change* practices of primary school PE from individual to collaborative approaches. Further, pre-service teachers adopt increasingly active as opposed to passive agents for change.

In summary, this section has provided evidence derived from bi-variate analysis of interview data that increasing the amount of PSTE-PE may advance pre-service teachers transformative learning, conceptions of primary school PE and commitment to Physical Education. Increased opportunity to study tertiary Physical Education was associated with greater perspective transformation, more student-centred conceptions of Physical Education, and, more intention to be more active and collaborative when managing change.

CONCLUSION

Results reported in this chapter are summarised in this section and discussed in relationship to literature. The summary presents results under the headings:

RR9: Increased opportunity to study tertiary PE was associated with:

- Increased opportunity to engage in steps of transformative learning. Completion of two units of study was associated most strongly with transformative learning.
- An increased percentage of pre-service teachers feeling prepared to teach primary school PE. Completion of a core unit of study was sufficient to increase this percentage.

RR10: Increased opportunity to study tertiary PE was associated with transformation of perspectives to Physical Education. More specifically changes from

- syllabus to learner centred viewpoints;
- independent to collaborative/ team approaches;
- rigid to flexible responses to pupil needs;
- focus on pupil enjoyment to pupil learning;
- no change to *status quo* to systemic change; and
- teaching roles of *generalist* to *semi-specialist*

Results reported in this chapter have shown that the strategy of increasing Primary School Teacher Education-Physical Education (PSTE-PE) has a potential to change three elements of pre-service teachers' perceptions of preparedness to teach primary school Physical Education. These elements were the nature of learning, personal conceptions of primary school PE, and, commitment to teaching PE in primary schools.

The first element was the nature of pre-service teacher learning. Analysis of survey and interview data provided evidence that when studying tertiary Physical Education pre-service teachers' learning conforms to steps of transformative learning. Increased PSTE-PE provides greater opportunity to question views and critique assumptions related to PE and Sport and thereby, enact new perspectives on Physical Education. Increased study affords pre-service teachers an opportunity to form or appropriate new and revised interpretations for the meaning of teaching primary school-aged children Physical Education. Completion of the core curriculum unit together with at least one elective was sufficient to achieve this transformation.

The second element was personal conceptions of primary school PE. Increasing PSTE-PE was associated with transformation of pre-service teachers' conceptions from syllabus to student centred orientations. Increasing study load in Physical Education from one to two units of study may be sufficient to transform these conceptions. Increased PSTE-PE provides opportunity for perspective transformation by changing pre-service teachers' frames of reference pertaining to primary school PE.

The third element was pre-service teachers' commitment to primary school PE. Increased study of tertiary Physical Education shifted these teachers' intentions to more collaborative practices to realise a more ideal conception for primary school PE. Two or four units of study were found to provide pre-service teachers with ideas pertaining to consultative and specialist teaching roles in primary school Physical Education.

Overall, pre-service teachers associate tertiary study of Physical Education with transformative learning that is manifest in changes to the students' *Frames of Reference* for preparedness to teach primary school Physical Education. These manifestations included changes to both conceptions and commitment to primary school Physical Education.

The next chapter, Chapter Eight, presents *Findings, Implications and Limitations* following triangulation of results reported in this chapter with those in Chapters Five and Six.

CHAPTER EIGHT

FINDINGS, IMPLICATIONS and LIMITATIONS

This chapter concludes the thesis. The following five sections present a *Synopsis of Research Findings;* a description of the *Relationship of Findings to the Literature*; a précis of *Implications of the Findings*; *Limitations of the Study* and *Recommendations for Future Research*.

SYNOPSIS OF RESEARCH FINDINGS

This section begins with a *Summary of Research Results* followed by a report of major *Findings from the Investigation*. These findings are: *A Framework for Perceptions of Preparedness to Teach Primary School Physical Education*; *A Heuristic for Learning-to-teach Primary School Physical Education;* and *A Pre-service Model for Primary School Teacher Education (Physical Education).*

Summary of Research Results (RR)

A compilation of results reported in Chapters 5, 6 and 7 is presented, which mirrors the order in which they have been reported in the thesis. This summary facilitates cross-referencing of Research Results (RR) to Research Findings (RF). The summary comprises a list of ten codes each with an associated description.

RR1: Pre-service generalist teachers in the study indicated that they felt prepared to:

- Plan and program for safe and effective learning in Physical Education (84.8%) and Sport (84.7%).
- Teach classes of primary school-aged children in the areas of *Games and Sports* (93.1%), *Movement Skills* (87.0%), Primary School Physical Education (84.5%), *Dance* (75.4%) and *Gymnastics* (61.1%).

RR2: To describe perceptions of preparedness, participants in the study utilised four categories, namely *very prepared, prepared, pretty prepared* and *not very prepared*. Three similes adopted by pre-service teachers for "preparedness" were *readiness*, *comfort* and *confidence.*

RR3: Four purposes for primary school PE emerged from the interview data, namely holistic development of primary school-aged children, acquiring skills, participation in physical activity and promoting an active and healthy lifestyle.

RR4: Three major approaches to organise and structure primary school PE were identified from the interview data, namely variations for scheduling, programming and delivering Physical Education.

RR5: Pre-service teachers' perceptions of preparedness to teach PE conformed to Mezirow and Associates (2000) description for *Frames of Reference (FoR).*

RR6: Major contributors to pre-service generalist teachers' perceptions of preparedness to teach Primary School Physical Education were university-created learning experiences, namely

- units of study in tertiary PE; and
- practical opportunities to plan, program, teach and/or experience Physical Education and Sport.

RR7: Major contributors to perceptions of preparedness associated with core units of the HPESS program included: practical sessions oriented to the syllabus content strands of *Dance, Games and Sports, Gymnastics* and assessment tasks required of the core unit of study. For elective units, major contributors were advanced study of *Fundamental Movement Skills*; working collaboratively in a team to plan sporting events; and, the specialist component of the internship.

RR8: Life experiences beyond university with people and events were sources of requisite knowledge and skill to teach PE. These experiences were also found to be contributors to perceptions of preparedness.

RR9: Increased opportunity to study tertiary PE was associated with:

- Increased opportunity to engage in steps of transformative learning. Completion of two units of study was associated most strongly with transformative learning.
- An increased percentage of pre-service teachers feeling prepared to teach primary school PE. Completion of a core unit of study was sufficient to increase this percentage.

RR10: Increased opportunity to study tertiary PE was associated with transformation of perspectives to Physical Education. More specifically changes from

- syllabus to learner centred viewpoints;
- independent to collaborative/ team approaches;
- rigid to flexible responses to pupil needs;
- focus on pupil enjoyment to pupil learning;
- no change to *status quo* to systemic change; and
- teaching roles of *generalist* to *semi-specialist*.

FINDINGS FROM THE INVESTIGATION

In this section, Research Results are grouped to describe three Research Findings. The first finding devised from grouping RR1 – 5 and 9, is *A Framework for Perceptions of Preparedness to Teach Primary School Physical Education*. The next finding integrates RR6, 7 and 8 with this framework to propose *A Heuristic for Learning-to-teach Primary School Physical Education.* A synthesis of all ten Research Results is the genesis of the final finding, namely A *Pre-service Model for Primary School Teacher Education (Physical Education).*

A framework for perceptions of preparedness to teach primary school physical education

A three-level, hierarchical framework was the first major finding of this study. The framework, shown in Figure 8.1, employs the modelling strategy of "nesting" to build a complex model from simple components (Jordan, 2010, p.8). In this instance, the simple components were RR 1 – 5 and 9. To emphasise the specific context (i.e., student teachers and primary school PE), this finding was termed, *A Framework for Perceptions of Preparedness to Teach Primary School Physical Education (PPTPSPE).*

The framework shown in Figure 8.1 depicts pre-service generalist teachers' *perceptions of preparedness to teach primary school Physical Education* as a containment relationship of three nested components. Listed from the centre of the framework, these components were: *Habits of Mind (HoM)*, *Points of View (PoV)* and *Professional Frame of Reference (PFoR)*.

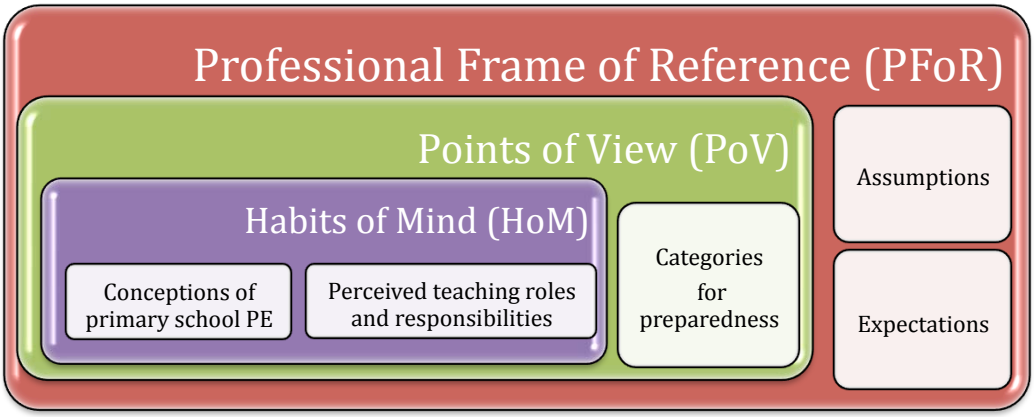


Figure 8.1. A Framework for Perceptions of Preparedness to Teach Primary School Physical Education

Each of three components of the framework employs variations on "meaning-making" structures described by Mezirow and Associates (2000). These structures include *Habits of Mind*, *Points of View* and *Professional Frame of Reference*.

Habits of Mind

The component of the framework labelled *Habits of Mind* contains Research Results 3, 4 and 9 pertaining to pre-service teachers' conceptions of primary school PE and associated teaching roles and responsibilities. As these conceptions and perceptions conformed to Mezirow's description for aesthetic and psychological Habits of Mind, this component was given the generic term *Habits of Mind* (HoM).

Points of View

The next component of the framework, labelled, *Points of View* contains Research Result 2 (RR2), namely, pre-service teachers' categories of preparedness to teach primary school Physical Education. *Points of View* were situated in the framework to encapsulate *Habits of Mind* for two reasons. Firstly, because evidence from this study showed an association between categories for pre-service teachers' perceptions of preparedness and conceptions of primary school Physical Education. Secondly, because Mezirow and Associates (2000) theoretical description states that *Habits of Mind* are expressed as *Points of View*.

Professional Frame of Reference (PFoR)

The largest component of the framework, coded PFoR contains pre-service teachers' assumptions and expectations associated with perceptions of preparedness to teach Primary School Physical Education. Examples include: assumptions related

to purposes for Physical Education (RR3); approaches to organising and structuring Physical Education (RR4); and, expectations related to foci for preparedness (RR1 and RR2). As these assumptions and expectations were *Habits of Mind* and *Points of View*, this finding conformed to Mezirow and Associates (2000) description for *Frames of Reference* (FoR). Given changes to these assumptions and expectations were found to be associated with learning experiences of tertiary Physical Education (RR6), this component of the framework was named *Professional Frame of Reference* (PFoR).

In summary, the research-informed PPTPSPE framework describes structures involved in pre-service generalist teachers' perceptions of preparedness to teach primary school Physical Education. These structures act as filters as the teacher perceives a personal meaning for *preparedness* and professional meaning for the subject, namely, *Physical Education*. Further, the framework shows the association between these meaning-making structures. For pre-service teachers in this study, the association between *Habits of Mind* pertaining to conceptions of primary school PE and roles and responsibilities to teach.

A Heuristic for Learning-to-teach Primary School Physical Education

The second finding is a *Heuristic for Learning-to-teach Primary School Physical Education* (LPSPE) in the context of a Teacher Education program with a Physical Education specialisation. The heuristic, shown as Figure 8.2, integrates Research Results (RR) previously embedded in the PPTPSPE framework with RR6, 7 and 8 regarding pre-service teachers' perceptions of preparedness. Situated in the broader process of "theory-building", the purpose of this heuristic was to progress research. This was achieved by providing a research-based description for learning-to-teach for the context of Primary School Teacher Education-Physical Education.

The LPSPE heuristic features three sequential *Professional Frames of Reference* (PFoR). These frames are linked by arrows indicating progressive completion of tertiary units of study in Physical Education. Each frame includes a *Habits of Mind* (HoM) and *Point of View* (PoV) that are allocated a numeral consistent with the number of units of study completed. Accordingly, PFoR1 comprises conceptions of primary school PE and associated teaching roles and responsibilities (HoM1) together with a category for preparedness to fulfil these teaching roles and

responsibilities (PoV1), both of which are associated with completion of a first unit of study in tertiary Physical Education.

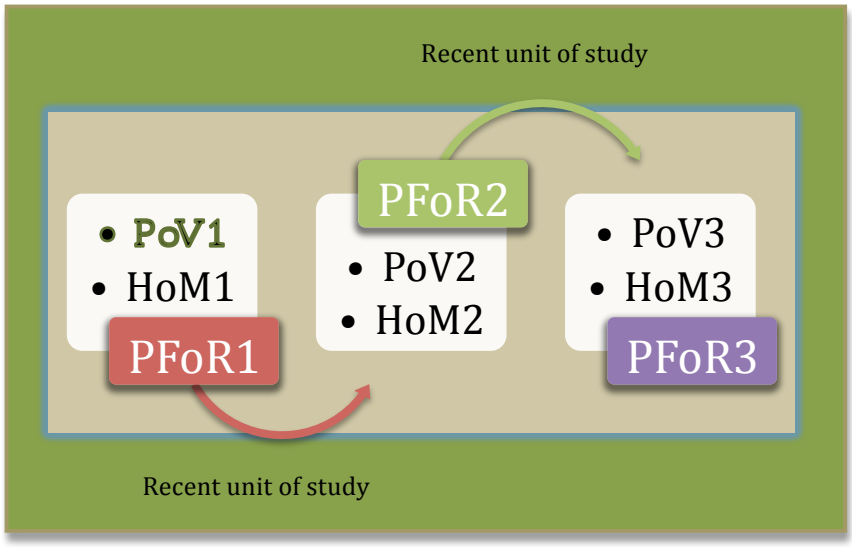


Figure 8.2. A Heuristic for Learning-to-teach Primary School Physical Education

Completion of further units of study adopting different perspectives for primary school Physical Education transforms the *Professional Frame of Reference* (PFoR1) associated with the former unit of study to a new *Frame of Reference* (PFoR2). The new frame is associated with learning from completion of the more recent unit of study. Described in theoretical terms, PFoR1 is changed to PFoR2.

To illustrate the connection between this heuristic and a pre-service teacher's experience of learning-to-teach PE at the university, the following example is provided.

> On completion of a curriculum unit of study in tertiary Physical Education, a pre-service teacher described a syllabus conception of Primary School PE related to helping pupils to lead healthy and active lifestyles. Teaching responsibilities associated with this conception of Physical Education were perceived as programming, planning and delivery of syllabus learning outcomes to her class of pupils. This teacher reported feeling prepared to teach her conception of primary school PE.
>
> Subsequent completion of a unit of study with a scientific perspective to Physical Education enabled the pre-service teacher to view the syllabus conception of Physical Education as too narrow or limiting. Her

conception limited opportunity for primary school-aged children to acquire Fundamental Movement Skills. In order to assimilate this new perspective into the existing Professional Frame of Reference (PFoR1), she transformed HoM1 pertaining to active, healthy lifestyle in order to accommodate her new priority for motor skill acquisition (HoM2). This transformation from HoM1 to HoM2 changed the pre-service teacher's Point of View (PoV2) and Professional Frame of Reference (PFoR2). The pre-service teacher reported feeling prepared to teach PFoR2.

Further study of tertiary Physical Education, namely, the opportunity to deliver primary school Physical Education in an authentic setting (specialist practicum) continued the change to structures of this teacher's Professional Frame of Reference. In Figure 8.2, this transformation is shown as PFoR3 and may be described by the notation PoV3 + HoM3 = PFoR3. The pre-service teacher reported feeling prepared to fulfil additional roles required for the new conceptions of Primary School PE, namely, delivering Physical Education to all classes of a school as the nominated school "PE specialist".

As demonstrated through this example, an advantage of the heuristic is a language of structures and associated notations to describe learning-to-teach.

In summary, increased PSTE-PE changed student teachers' *Habits of Mind*, *Points of View*, and thereby *Frames of Reference*. This finding conforms to Mezirow and Associates (2000) description of learning, whereby, people open up their *Frames of Reference*, discard a *Habit of Mind* to see new alternatives and subsequently integrate the new perspective into their lives. In this instance, pre-service generalist teachers learn through the opportunity to know new perspectives for primary school PE that are eventually integrated into their intended professional teaching practices.

A Pre-service Model for Primary School Teacher Education (Physical Education)

The *Pre-service Model for Primary School Teacher Education (Physical Education)* was developed from Research Results (RR) from this study. More specifically, results already embedded in the *LPSPE framework* and *heuristic* together with RR10 pertaining to transformation of perspectives to Physical

Education. The model, shown in Figure 8.3, employs the allegory of a university lecture theatre. Features of this theatre include a lectern, three tiers of seating, walkways in front of each tier, and partitions behind each tier. The lecture theatre is positioned to display a feature wall supporting the structure.

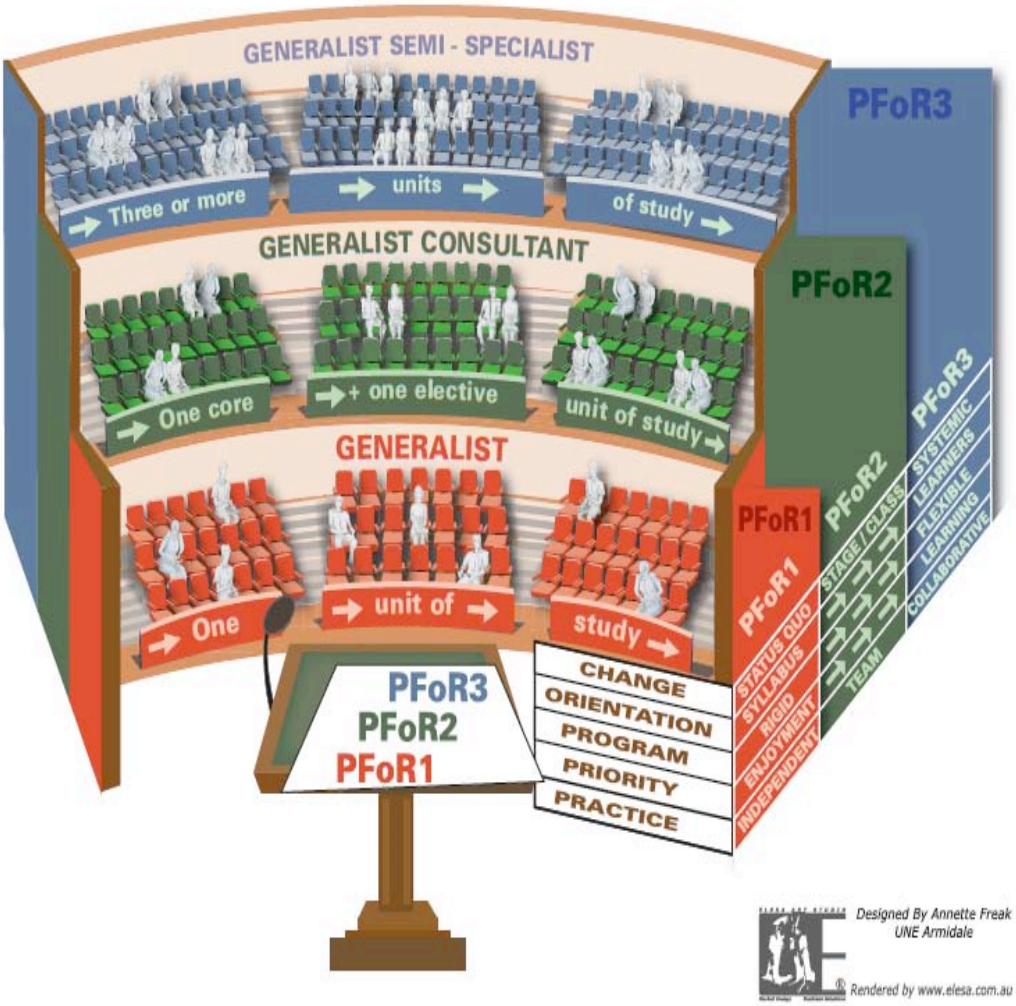


Figure 8.3. Pre-service Model of Primary School Teacher Education (Physical Education)

In the foreground of the model is a lectern that displays the pre-service teacher educators' notes, namely PFoR1, PFoR2 and PFoR3. Derived from the *Heuristic for Learning to Teach Primary School Physical Education* the notation PFoR represents a *Professional Frame of Reference*. The educators' notes show a succession of these frames from PFoR1 to PFoR3. This succession is the "blueprint" for Pre-service Teacher Education. In the context of Primary School Teacher Education - Physical Education (PSTE-PE) this plan involves progressively

transforming pre-service teachers' *Frames of Reference* for Physical Education over three units of tertiary study related to Physical Education.

A more detailed description for each tier of the model shown in Figure 8.3 and the *Professional Frames of Reference* associated with increased study of tertiary Physical Education is provided next under the headings *PFoR1, PFoR2, and PFoR3.*

PFoR1

As displayed on the walkway at the front of the lecture theatre, pre-service teachers seated in the lower tier are completing the mandatory, curriculum unit of study in their Teacher Education program. Based on the *Framework for Perceptions of Preparedness to Teach Primary School PE*, these teachers feel prepared (*Point of View*) to independently plan, program and deliver a fairly rigid, syllabus-informed teaching-learning program for Physical Education (*Habit of Mind*). To represent their vision for independent teaching practice, the student teachers are depicted sitting as individuals. Typically, these teachers' *Frame of Reference* will be characterised by intentions to: maintain the status quo in a school; a syllabus orientation to Physical Education; and a priority for school students to enjoy their PE. These characteristics are etched on the feature wall as outcomes of pre-service teacher education. The partition behind the first tier portrays these teachers as *Generalist*s who feel prepared to teach a class of primary-school-aged children Physical Education as a sub-discipline of the primary school curriculum.

PFoR2

The walkway in front of the second tier suggests that pre-service teachers seated in this tier have completed a core curriculum unit of study followed by an elective unit of study in tertiary Physical Education. Like the generalist-teachers seated in front of them, these teachers report feeling prepared to teach primary school PE (*Point of View*). However, increased study of tertiary Physical Education has transformed their *Habits of Mind* to accommodate the notion of working in consultation with other teachers to plan, program and deliver a PE program designed for class groups or specific stages of schooling. Accordingly, these pre-service teachers are depicted sitting in pairs. As this new conception of teaching roles and responsibilities (*Habits of Mind*) differentiates them from the Generalist Teacher, the partition behind them

reads *Generalist-consultant*. In addition, the feature wall also indicates transition from syllabus to learner orientations and rigid to flexible programs.

PFoR3

Seated in the top tier are pre-service teachers having completed three or more units of study in tertiary Physical Education. Like their peers seated in lower tiers, they also report feeling prepared to teach primary school PE (*Point of View).* However, the *Frames of References* for these teachers include different assumptions and expectations. As displayed on the feature wall, these pre-service teachers show commitment to advocate for systemic change, are oriented most strongly to the needs and interests of primary school-aged children, have high priorities for learning, and intend to work collaboratively. To personify this intention, these teachers are depicted sitting in groups. The partition behind the top tier identifies members of these groups as the *Generalist Semi-Specialist.* This classification describes generalist teachers with specialised knowledge, skills and commitment to school Physical Education.

The feature wall of the lecture theatre is partitioned into three vertical sections. When read from top to bottom, these sections display research-based teacher education outcomes for the *Generalist*, *Generalist-consultant* and *Generalist semi-specialist* teacher. When read from left to right, the outcomes describe learning continuums associated with increased tertiary study. These continuums present shifts in student teachers' commitment to: change (*status quo* to systemic); orientations (syllabus to learner orientation); programs (rigid to flexible); priorities for students (enjoyment to learning) and practices (independent to collaborative).

Figuratively, the three tiers of the lecture theatre show transformation of pre-service generalist teachers' structures for making meaning for teaching primary school Physical Education. Whilst all pre-service teachers seated in the lecture theatre report feeling prepared to teach primary school PE (*Points of View),* those seated in different tiers hold different conceptions of primary school PE associated with increased study of tertiary Physical Education. These conceptions change perceptions for teaching roles and responsibilities (*Habits of Mind)* and assumptions and expectations regarding commitment/intention to teach (*Frames of Reference).* In summary, the Pre-service Model in Figure 8.3 depicts the transformative nature of learning-to-teach primary school Physical Education.

In summary, this study found that pre-service generalist teachers did associate Primary School Teacher Education-Physical Education (PSTE-PE) with perceptions of preparedness, readiness, competence and confidence to teach primary school Physical Education. Further, the findings of the study provide a theoretical framework, heuristic and model which help to describe, explain or predict learning-to-teach primary school Physical Education from the perspective of the classroom (generalist) teacher. These findings constitute new and original contributions to the PSTE-PE literature.

IMPLICATIONS OF THE FINDINGS

Major findings from this investigation are theoretical contributions to understanding pre-service generalist teachers' perceptions of preparedness to teach an aspect of school curriculum. This section presents implications of these findings relevant to *Future Australian Inquiries into Physical Education*, *Theoretical Foundations for Pre-service Teacher Education*, *Teacher Education Outcomes*, *Physical Education Teacher Education*, and *Primary Generalist Teacher Education (Physical Education).*

Future Australian Inquiries into Physical Education

Two themes have dominated reports from inquiries into Physical Education in Australia. The first is the need to determine a national minimum requirement for Teacher Education courses (refer for example Recommendation 32, SSCERA, 1992). The second theme is mandating inclusion of "basic Physical Education training" in Teacher Education courses (refer for example the Crawford Report, 2006). Implicit in these recommendations is the assumption that knowledge exists to inform interpretation of "minimum requirement" and "basic training."

Findings from this investigation suggest that the Physical Education component of initial teacher education, prior to employment as a generalist primary school teacher, should involve a minimum of two units of study in tertiary Physical Education followed by opportunity to apply learning from these units in supportive primary school settings. This finding may be of interest to NSW authorities and tertiary institutions given the Senate Standing Committee on Environment, Recreation and the Arts (1992) "Recommendation 32: That the Commonwealth, through the Australian Education Council, consult with State and Territory

authorities and tertiary institutions to determine national minimum course requirements in physical education for both generalist and specialist teachers at primary and secondary level" (p.115).

Findings from this investigation suggest programmatic elements for the "basic training" (Crawford Report, 2009) or initial preparation of generalist teachers with respect to PE and Sport. Program elements include the opportunity for pre-service teachers to form an initial *Professional Frame of Reference* (PFoR1) pertaining to PE; transform structures of PFoR1 resulting in PFoR2; and, experience teaching Physical Education in primary schools referenced to the newly formed PFoR2. In this context, "basic", mandatory requirements can be achieved in two units of study with associated professional experiences. The *Pre-service Model for Primary School Teacher Education* may provide a useful conceptual and theoretical framework to inform judgements pertaining to the scope and sequencing of learning experiences during Pr-service Teacher Education. This finding addresses, in part, a recommendation of The Crawford Report (2009) to further review current teacher training requirements to consider mandatory inclusion of *basic* physical education training.

Findings from this study may also provide further research-based evidence to inform the work of *The Australian Institute for Teaching and School Leadership (AITSL)* around the introduction of a *National Curriculum* and *National Professional Standards for Teachers* (AITSL, 2011). For example, the submission by the Australian Sports Commission (ASC, 2010, p.3) related to the proposed national system for the accreditation of pre-service teacher education programs highlighted "the inconsistency and in some cases inadequacy of teacher training in relation to physical education and sport education, particularly within primary schools." The ASC cited research by Morgan and Bourke (2007) to support the need for greater national consistency and improvement in the quality of teaching and specifically teaching of Physical Education in Australian primary schools. A greater depth of Australian-based research would have been advantageous.

Theoretical Foundations for Pre-service Teacher Education

Findings from this investigation provide strong support for continued inclusion of Transformative Learning Theory in the "colourful mosaic" (Merriam, 1993) of learning theories currently informing Pre-service Teacher Education programs and

practice. A case in point is Mezirow and Associates (2000) theoretical description of transformative learning. Findings from this study have demonstrated specific application to an area of initial teacher education where pre-service teachers' personal *Frames of Reference* formed prior to Teacher Education are problematic for professional service. Whilst these findings were specific to the area of primary school Physical Education, it is plausible that Transformative Learning Theory has wider applications to other marginalised or rapidly changing sub-disciplines or to Teacher Education more generally.

Knowledge of structural elements of Transformative Learning Theory has implications for Teacher Education pedagogy and practice. For example, *Habits of Mind*, *Points of View* and *Frames of Reference* provide a language to formulate and describe aims, objectives or learning outcomes for a unit of study in tertiary Physical Education. For example, in settings similar to NSW where primary school Physical Education is characterised by a perpetuation of a non-teaching ideology (Crum, 1990; Morgan & Bourke, 2008), programs of initial teacher education may be purposefully oriented to challenging the *status quo* by questioning problematic *Frames of Reference* to Physical Education, changing *Habits of Mind* to envisage new conceptions of the subject, and teaching roles and responsibilities. Based on findings from this research, Transformative Learning Theory has relevance to these contexts.

Teacher Education Outcomes

A highly contested aspect of teacher education generally is defining the outcome or outcomes of Teacher Education (Cochran-Smith, 2001). In NSW, primary school teacher education outcomes are currently being defined within a paradox or "disjuncture between assumptions that the primary curriculum can be delivered by generalists and current practices" (Ardzejewska, McCaugh & Coutts, 2010, p.203). In NSW government schools, there is emerging evidence of the practice of recruiting subject specialist teachers (Ardzejewska et al, 2010). Consequently, the paradox refers to a circumstance whereby agencies beyond the university (e.g., NSW Institute of Teachers) advocate for generalists whilst school leaders (e.g., Principals) mediate for specialists. In this context, teacher educators may need to "look" anew at teacher education outcomes.

Based on findings from this investigation, it is recommended that whilst employers of teachers specify requisite knowledge and skills (e.g., policies of the NSW Department of Education and Training mandate employment of generalist primary school teachers), teacher educators consider viable pathways to this outcome. For example, in this study, pre-service teachers were prepared within the same Teacher Education program as *generalists*, *generalist-consultants* and *generalist semi-specialists.* All these graduates satisfy both the recruitment needs of employers and the need to address concerns for the educational entitlement of primary school-aged children to Physical Education.

Evidence from this study asserts that a uni-dimensional measure such as pre-service teacher "confidence" or "preparedness" may be inadequate as measures of the outcome of increasing Teacher Education in a curriculum area such as Physical Education. Rather, measures of pre-service teacher outcomes need to be multi-faceted. For example, a measure of the outcome of Teacher Education in which perceptions of preparedness to teach are referenced to specific conceptions of what and how a school subject is being taught together with the relative value of this conception to the education of the child.

Given the finite, contested and competitive space available to teacher educators to prepare pre-service teachers across the scope of studies in Education, evidence from this study moves debate towards the question, namely, "Is more Teacher Education better?" The findings from this investigation, show that "more is better" in programs where pre-service teachers have access to only one unit of study in an area of curriculum (Physical Education). "More is not better" once pre-service teachers have formed a *Professional Frame of Reference* from which the learning of primary school children is situated at the centre of all priorities.

Physical Education Teacher Education

A key finding from this study was that university-created learning experiences were major contributors to pre-service generalist teachers' perceptions of preparedness in a program of Primary School Teacher Education (Physical Education). This finding identifies fundamental differences with findings from studies of specialist pre-service teachers in programs of Physical Education Teacher Education (PETE). For PETE pre-service teachers, experiences of school PE and Sport are known to be so powerful that learning during Teacher Education may be perceived as having

minimal impact (Curtner-Smith, 1999; Lortie, 1975; Zeichner & Tabachnik, 1981). This contrast raises the possibility that pedagogy and practice in PSTE-PE and PETE may be necessarily different and therefore, research in these areas constitute distinct and different fields of enquiry.

Biographical differences between PSTE-PE pre-service generalist teachers and PETE specialist student teachers further support the claim that Teacher Education pedagogy and practice are different disciplines. Student teachers in PETE programs tend to be homogeneous in relation to positive predispositions and attributes for Physical Education/Sport with accompanying high self-efficacy and perceived skill levels. Conversely, PSTE-PE pre-service teachers more typically represent a cross-section of the range of experiences in Physical Education and Sport. Some of these experiences are reportedly "quite unmemorable." Based on demographic differences, teacher educators may encounter different "starting points" when introducing pre-service teachers to the idea of Physical Education. For PETE student teachers, personal *Frames of Reference* for Physical Education formed prior to Teacher Education i.e., FoR(F) are likely to be positive. For PSTE-PE pre-service teachers, FoR(F) may be more likely negative. The task of transforming these teachers *Formative Frames of Reference* to *Professional Frames of Reference* begins with a different set of assumptions and expectations.

Irrespective of the context of preparing generalists or specialist teachers of Physical Education, an implication of this research inculcates a way for teacher educators to shift their thinking from diagnostic questions such as "Where are my students now?" to "What are my students *Frames of Reference* for school Physical Education and how well will these frames serve them in their professional lives?" As a diagnostic, this newly framed question can identify more comprehensive learning needs and interests of pre-service teachers and stimulate innovative practices in future teacher education programs.

Primary Generalist Physical Education

Primary teachers are prepared as generalists in many countries including Australia, Canada, China, Hong Kong, Japan, New Zealand, Singapore and USA (Villegas-Reimers, 2003). Additionally, marginalisation of school Physical Education has been well documented worldwide (e.g., Curtner-Smith, 2001; Hardman & Marshall, 2000, Macdonald, 1995; Smyth, 1995, Wright, 2001). Consequently, the context of

preparing generalist teachers to deliver conceptions of school Physical Education beyond the personal experience of pre-service teachers has a broad reach. Evidence from this study offers teacher educators in similar contexts a model with the potential to promote change, define teacher education outcomes, guide program design, inform approaches to teaching and challenge student teachers to "critically question and assess the integrity of their deeply held assumptions" (Mezirow, 2009, p.xi) regarding primary school Physical Education.

Transformative learning "should not be practiced naively or without forethought or planning" (Taylor, 2009, p.14) in Primary School Teacher Education-Physical Education to change pre-service teachers' premises pertaining to a school subject. Rather, findings from this study present guiding principles to consider when planning and programming tertiary Physical Education in Primary Teaching awards. These guidelines suggest that teacher educators

- offer pre-service teachers a minimum of two units of study in tertiary Physical Education to provide a platform for perspective transformation;
- offer both core and elective units of study to enable pre-service teachers to experience the idea of school Physical Education from perspectives beyond contemporary curriculum frameworks;
- prioritise learning approaches that involve pre-service teachers in practical experiences of learning and teaching Physical Education. These experiences were found to be integral to the formation of *Professional Frames of Reference* for Physical Education;
- provide diversity of teacher education pedagogy such that pre-service teachers have both personal and professional experiences of learning underpinned by traditional and constructivist epistemologies;
- schedule time for the pre-service teacher to reconsider, reinterpret and question thoughts (assumptions and expectations), feelings and beliefs (values) associated with primary school PE. This time for reflection enables structures of their *Frames of Reference* to be more open to change. During this time, pre-service teachers should engage in discourse and dialogue with a range of people (teachers, coaches, teacher educators and peers) identified in the study as sources of knowledge, skills and values for teaching;

- create pathways to school-based professional experiences in supportive settings in which pre-service teachers are afforded the opportunity to schedule, program and deliver their professional conception of Physical Education to classes of primary school-aged children representative of all years of schooling; and
- provide support to pre-service teachers during school-based professional experience to ensure that transformed perspectives of primary school Physical Education are enacted and improve the Physical Education entitlement of children. A suggested strategy, informed by literature related to online, intentional communities of practice, is presently being trialled at the research university site. This strategy has been named *Satellite Teaching Communities.*

Essentially these guidelines direct Teacher Education practices toward more transformative approaches.

In summary, this section has presented findings from this investigation with implication for future inquiries into Physical Education together with Teacher Education theory, pedagogy and practice generally as well as Physical Education related Teacher Education more specifically. Identification and discussion of implications was deliberately limited to those based upon evidence from this research.

LIMITATIONS OF THE STUDY

Whilst the trustworthiness of the findings was prioritised throughout all phases of the research, three broad limitations of the study are presented in this section. These limitations include aspects of the *Research Design*, *Profile of the Cohort* and *Analytic Procedures*. Recommendations to address each limitation are presented in the subsequent section.

Research Design

Research activity in this investigation focused upon one teacher education initiative, in one area of curriculum (Physical Education) at a single tertiary education site during one period of time. This narrow focus may be attributed to four limitations of the study.

1. The teacher education initiative, namely the PE specialisation, was unique to the research site. Consequently, given the highly contextualised focus of inquiry it was not possible to collect data from multiple sites for the purpose of comparison.
2. Repeat measures of the same students would also provide a means to investigate change within subject as opposed to the cross-sectional approach. Pragmatics of access to students created a barrier to this approach.
3. The unit for analysis, namely *perceptions of preparedness to teach primary school Physical Education* was confined to a sub-discipline of one Key Learning Area (KLA) of the NSW Board of Studies primary school curriculum, which had few parallels to sub-disciplines in other KLA or other State or Territory curriculum frameworks.
4. The research inquiry was necessarily constrained by a period of research not exceeding six years. Given the context in research training, this period was insufficient to conduct a longitudinal study.

Mixed-methods were employed to triangulate findings. Methods employed were a literature-informed survey questionnaire and an interview guide. An unexpected finding of the research was little variation in degree of preparedness across the stratified sample. This finding shifted the focus of the research from *perceptions of preparedness* as a single entity to structural elements of those perceptions. As this finding had not been previously reported in the literature when the survey questionnaire was developed, specific items pertaining to conceptions of primary school Physical Education were not included in the survey instrument. Due to the emergent nature of this facet of the research, results reported for investigation of pre-service teachers' conceptions of Primary School Physical Education were limited to analysis of interview data.

Profile of the Cohort

The stratified sample of pre-service teachers in this investigation was intended to represent a cross section of these teachers by increased Primary School Teacher Education-Physical Education. However, unforeseen circumstances related to ethical collection of data compromised the scope of strata. For instance, data were not collected from pre-service generalist teachers having completed the maximum

number of six units of study in Physical Education available to off-campus students. These teachers were few in number, at the end of their course, preparing for final exams, applying for teaching positions, attending suitability interviews and as such were reluctant to volunteer to participate further in the study through research interview. Data of this type would have enabled further comparison with the Specialist Interns and lengthened the continuum of the specialisation pathway.

In addition, the external cohort of pre-service teachers was not included in the Specialist ten- week internship due to logistical constraints. Examples of constraints included: Degree program variation; limited availability to professional experience placements supportive of Physical Education; equity issues governing policy and practices of the office responsible for Professional Experience; and limitations of practicum supervision by members of the HPESS team given, the size of the team and costs related to supervision of students placed in schools large distances from the tertiary institution.

Instrumentation

Despite challenges related to measuring teachers' (service and pre-service) *perceptions of preparedness to teach*, research interest in this area continues to the present day. For example, a recent Australian project (Louden, Heldsinger, House, Humphrey & Fitzgerald, 2010) investigated the link between teacher education program characteristics and personal characteristics with effectiveness in the teaching of literacy and mathematics. Teacher Learning Inventories were created to measure teachers' personal characteristics, perceptions of preparation for teaching in these substantive areas, and knowledge of literacy or mathematics teaching. The psychometric properties of four new instruments developed for this study were explored in detail. Analysis of these instruments using the Rasch Measurement Model (Rasch, 1960) shows that the instruments measure the three traits with satisfactory levels of internal consistency. This finding presents both new instrumentation and methods to advance research of *perceptions of preparedness to teach*.

Analytic Procedures

A limitation of Colaizzi's (1978) procedures was the sixth step, namely the member check. This step required the researcher to validate with participants the *exhaustive*

description for each theme cluster. Having completed four member checks, one with a participant from each strata of the sample, the possibility of a power inequity between the researcher and student teachers emerged. Participants validated descriptions too readily offering few areas of contestation.

To address this concern in this study, an additional procedure, namely, inter-rater reliability checks were performed. Two peers, employing Colaizzi's procedures in non-related research activity, independently performed checks on the coding of three interview transcripts. Few areas of discrepancy with coding were identified. This finding in conjunction with participant's validation served to increase the trustworthiness of the initial coding.

RECOMMENDATIONS FOR FUTURE RESEARCH

Emerging from this thesis are three recommendations for future research. These recommendations are presented in order of importance.

1. The narrow research focus adopted for pragmatic reasons in this study could benefit from being broadened. This may be achieved through a two-phase approach. The next phase (i.e. Phase 2) could be conducted at a single site (i.e. one university) and involve investigation of student teachers' perceptions of preparedness to teach in more than one curriculum area. For example, data could be collected from pre-service generalist teachers in Primary Teaching awards completing units of study in aspects of Key Learning Areas such as Physical Education from PDHPE (to replicate this study), and Music Education from Creative and Practical Arts (CAPA). During this phase, the Pre-service Model for Primary School Teacher Education could be tested. In the final phase (i.e. Phase 3), the investigation could be broadened to include multiple sites. Examples may include other universities in NSW with comparable Teacher Education programs or universities in other State and territories of Australia with comparable contextual factors.
2. Within subject changes using a repeat measure longitudinal research design would provide fine-grained changes as students move from one unit to another across a specialisation pathways. Effects detectable in the order of

units could also be investigated to determine any benefit in learning sequences.

3. Rather than face the possibility that compliance with ethical data collection may result in no volunteers in one strata of the sample, a longitudinal study tracking a single cohort of volunteer generalist pre-service teachers is recommended. An added advantage of this approach is inclusion of other strata of pre-service teachers such as those who have completed no units of study in a curriculum area, and those in schools who are engaged in postgraduate study of Physical Education.

4. An alternative analytic framework to that of Colaizzi (1978) for manual analysis of interview data by a research-practitioner is recommended for future research. Essentially, Colaizzi's (1978) nine-step procedure provided a defensible method to reduce word data to a *fundamental structure*. However, based on the experience of adopting this procedure with pre-service teachers and the need to employ an additional strategy to ensure the trustworthiness of results (e.g. to address concerns regarding member checks), the 5-step framework of Thomas (2006) published after this research was conceived may offer a reliable alternative. Essentially, both procedures involve inductive coding processes to reduce large transcript files to meaningful units (themes or categories) underlying the focus of research (i.e. teachers perceptions of preparedness). However, Thomas's procedures are more generic, adaptable to the context of the research and conclude with creation of a model that incorporates categories emerging from the data. Greater exploration of Leximancer (Smith, 2000) as a text-mining software tool to tease out and progress this form of analysis may also be advantageous.

CONCLUSION

Ensuring provision of safe and effective Physical Education to all primary school-aged children in the State of New South Wales, Australia, irrespective of whether they attend a government, non-government or independent school remains a challenge for teacher educators. The response to concerns for teacher preparedness linked to initial teacher education, namely to increase teacher training in Physical

Education, has been the subject of this investigation. Two new perspectives to understanding increased Primary School Teacher Education-Physical Education have emerged. Firstly, pre-service teachers' perceptions of preparedness were found to be multi-structural comprising *Points of View*, *Habits of Mind* and resultant *Frames of Reference*. Secondly, the structure most likely to be associated with changed perceptions and practices for primary school Physical Education were pre-service teachers' *Frames of Reference.*

Implications for the findings of this research were referenced to new understanding for what may constitute minimum requirements for the Generalist Physical Education component of Teacher Education programs; a theoretical framework for learning-to-teach Physical Education applicable to these programs; and evidence-based recommendations to inform Teacher Education pedagogy and practice. Further research is recommended to address perceived limitations of this investigation and thereby "test" the research findings.

Previous research related to school students' perspectives of physical education has shown that:

> "Listening to students can provide valuable perspectives and new insights into the complexities of teaching and learning that can be applied to improving the quality of physical education in our schools." (Dyson, 2006, p.343)

Similarly, the research reported in this thesis that prioritised listening to the "voices" and "viewpoints" of pre-service teachers has provided new insights into the complexities of *Primary School Teacher Education - Physical Education (PSTE-PE).* Such insights, when applied to future research and practice have a potential to improve the quality of teacher education in our universities.

Finally, to borrow the sentiments of Merriam (1993, p.12) in her reference to adult learning, it remains doubtful that a phenomenon as complex as pre-service generalist teachers perceptions of preparedness to teach an aspect of curriculum will ever be explained by a single theory, model or set of principles. Rather, this research has contributed further to a multifaceted understanding of learning-to-teach primary school Physical Education and in so doing acknowledged the inherent richness and complexity of both teaching and Teacher Education.

EPILOGUE

Initially, the desire to improve the Physical Education entitlement of primary school-aged children in NSW through provision of effective initial teacher education was the central motivator for this research. This desire remains. However, in the process of learning-to-research in this area, a personal transformation has taken place that has already led to career expectations not previously envisaged. The greater outcome of this investigation was realizing that my *Frame of Reference* to the place of educational research in teacher education was problematic. By resolving this dilemma, new meanings and respect for theory formulated by, in and through research have emerged. Ultimately, learning to think, act and feel like a researcher was the greatest outcome of this research.

It is apt, to conclude this thesis with a more contemporary description of the HPESS program. From 2011, the NSW Institute of Teacher's mandated that programs of initial teacher education include two 6-credit point units of study for each Key Learning Area of the school curriculum. Whilst this mandate doubled the minimum requirement for PDHPE in a Primary Teaching degree program, and conforms to the number of units recommended in this thesis, this requirement reduced the capacity of the university to offer and support elective units of study in Primary Teaching programs. Consequently, past opportunity for the learning of on-campus pre-service teachers to be transformative has been seriously compromised.

Based on findings from this investigation and the new contexts for Primary School Teacher Education in New South Wales, universities may support learning-to-teach primary school PE as transformative by modularising the mandatory, two core units of study in *Personal Development, Health and Physical Education* (PDHPE). For example, organising two core units into four modules creates a potential to introduce four perspectives. The first modules of each core unit needs to adopt a curriculum perspective with a focus on a syllabus perspective to firstly, Physical Education and secondly, Personal Development/Health. Outcomes from these curriculum modules will be FoR1 (active lifestyle) and FoR2 (active, healthy lifestyle). Remaining modules should aim to transform FoR1/FoR2 to FoR3/FoR4.

School-based professional experience supported by online intentional communities of practice is presently being investigated to further advance student teachers' perspective transformation.

In closing, during these times of education reform and beyond, it remains a high priority for teacher educators to preserve some autonomy in decisions related to the design and delivery of teacher education programs. Such decisions may now be informed by research conducted in times and settings when innovation in Teacher Education was welcomed, supported, and celebrated. Further, future programs maybe informed by a more comprehensive understanding of the perspectives and voices of pre-service teachers. In this regard, there is still much to do in research, teaching and service. I am grateful for the opportunity afforded me as a higher degree research student to envisage new possibilities, roles, responsibilities, and relationships in these fields of endeavour.