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Methodology: Research Design and Analysis of Data

As discussed in Chapter 1, the data used in this research book have been gathered from varying research projects relating to the preparation and implementation of "holistic" Health and Physical Education (HPE). The predominantly qualitative data have been gathered from different regions of the world, namely Oceania, America, Europe and the Middle East. The purpose of the research was to identify "how" the physical dimension can be implemented to best develop students' wellbeing. Wellbeing is a complex, multidimensional construct that cannot be properly measured by a sole indicator in a single domain (Borgonovi & Pál, 2016). Hence, in order to accurately monitor wellbeing, "it is critical that its multidimensional nature is considered" (OECD, 2017). Researching "Physical Education and Wellbeing" has involved various studies investigating various dimensions (cf. Chapters 11, 12, 13, and 14):

a. Primary school case studies: qualitative in-depth data from three case study Australian primary schools of various sizes;
b. Questionnaire: qualitative questionnaire for educationalists representing nine states of the USA;

T. Lynch, *Physical Education and Wellbeing*,
https://doi.org/10.1007/978-3-030-22266-6_10

c. Initial teacher education (ITE) case study: qualitative in-depth data from a recognised model (Ofsted outstanding) UK ITE physical education programme;
d. Teacher preparation: qualitative case study carried out in an international school in the Middle East, investigating secondary trained PE teacher participants who are responsible for teaching primary school children; and
e. National survey: qualitative and quantitative data gathered from a large empirical ex-post facto survey involving approximately 400 Australian primary [elementary] government school principals [head teachers].

Research Design

The qualitative research conducted was interpretivist and positioned within a constructionist paradigm. This theoretical framework is most apposite for the research studies (a, b, c, d and e), considering that understanding of the PE field, its clarity and success of policy implementation ultimately depends on teachers and students (Gardner & Williamson, 1999). The participants shared their experiences and perspectives within their context, which are never wrong. This is important as the implementation of curriculum, policies and PE terms adopted differ between nations and states.

The interpretive perspective assumes that there is change and that we live in an ever-changing world (Glesne, 1999). Emphasis is placed on the change and development of individuals, groups and societies (Sarantakos, 1998). This is most suitable given the various discourses, ideologies and philosophies that have influenced the PE field over the years. With regard to practitioner's perspective of H, W and PE, it was envisaged that there would be both positive and negative outcomes. This assumption is based on the personal experiences of the researcher, who in "qualitative research is often the primary instrument for data collection and analysis" (Merriam, 1998, p. 7).

Table 10.1 Research framework for (a) Primary school case studies (Australia)

Epistemology	Constructionism
Theoretical perspective	Interpretivism
Research methodology	Case study
Data generating methods	Interviews; Semi-structured
	Interviews; Focus group
	Reflective journal
	Observation
	Document analysis

(a) Primary School Case Studies

A constructionist epistemology frames the research as meaning making and was developed from engagement and interaction with the participants sharing their lived experiences and interpreting those experiences. The methodology chosen to construct meanings through capturing the context of each school was "evaluative" and "multiple" case study (Merriam, 1998). The purpose of the study is to explore the implementation of the Queensland HPE syllabus in three primary schools of varying enrolment size. The sites for the three case studies involved: one small-sized primary school (less than 200 students); one medium-sized primary school (200–400 students); and one large-sized primary school (over 400 students). The three case studies were selected as representative of their different demographics, pertaining to their size as measured by enrolment numbers, their geographic location and their socio-economic status. The study was a storytelling case study as it is a "narrative and descriptive account of an educational event, program or system which deserves to be told to interested audiences, after careful analysis" (Bassey, 1999, p. 58).

The methods engaged so as to enable precision of details within the chosen theoretical framework were semi-structured and focus group interviews, reflective journal, observations and document analysis (Table 10.1).

There were three focus group interviews within each school/case. One focus group with representatives from a class in the early years, one with representatives from a class in the middle years and one with representatives from a class in the upper years of the school. Maximum variation representation (Glaser & Strauss, 1967) involves "identifying and seeking

out those who represent the widest possible range of the characteristics of interest for the study" (Merriam, 1998, p. 63). A maximum variation representation process was employed, by means of a questionnaire, to select four student representatives with a high interest level in physical activities (two boys and two girls) and four student representatives with little interest in physical activities (two boys and two girls). The questionnaire results were checked for confirmation by the classroom teacher.

The overarching general research question that guided conduct of this research is:

- How is the key learning area Health and Physical Education being taught?

Supplementary research questions that generated data include:

- How are teachers in the schools implementing the HPE curriculum documents?
- What readily accessible resources do schools have to assist with the implementation of HPE?
- What are teachers' perceptions with regard to the HPE Key Learning Area?
- What are children's perceptions of the HPE Key Learning Area?

An analytical question arising from the research questions provides a more critical generation of data:

- What implementation strategies are required to optimise wellbeing?

Two ethical clearance s were granted before this research was conducted. An ethical clearance was awarded from Australian Catholic University and from Brisbane Catholic Education (BCE). Permission was then granted by each of the case study school principals; each of the teacher participants within each case study school; and consent from the parents of student participants. Credibility of the study was achieved by employing triangulation, the process for using multiple perceptions to clarify meaning

Table 10.2 Research framework for (b) Questionnaire (USA)

Epistemology	Constructionism
Theoretical perspective	Interpretivism
Research methodology	Interview/Questionnaire
Data generating methods	Open-ended question

(Stake, 1994). The multiple perceptions were obtained from observing and interviewing a variety of participants.

(b) Questionnaire (USA)

The purpose of this study was to investigate if issues raised in literature regarding uncertainty and confusion about associated PE terms in relation to HPE implementation exist among practitioners. For this investigation, it was decided to conduct an interview in the medium of a questionnaire (Table 10.2). The research site was set within the USA as this chosen nation provided a sample from which most could be learned (Merriam, 1998); it is a large and heavily populated country; separate states have authority for education curriculum policy, and as the literature eludes, there appears to be a number of terms used to represent the traditional nomenclature of "physical education" (cf. Chapter 6). Interviewing is a popular method for collecting qualitative data (Merriam, 1998); "There are many variants of the standard face-to-face interview. Questionnaires are one, where the respondent is given written questions and asked to respond at his [or her] leisure" (Bassey, 1999, p. 82).

Hence, the most appropriate method for gathering data in this sample, considering the research question, was a questionnaire (Kumar, 2005). The informal interview structure of an open-ended question is regarded as flexible, exploratory and more like a conversation (Merriam, 1998), enabling a format where "individual respondents define the world in unique ways" (Merriam, 1998, p. 74). Participants were asked an open-ended question relating to PE nomenclatures, where the respondent recorded the answer in his/her words, expressing themselves freely (Kumar, 2005, p. 132).

Other benefits of asking an open-ended question were that participants answered the same question, thus increasing comparability of

responses and reduced interviewer influence (Patton, 1990). Furthermore, this method was a favourable choice considering expense and time, and that the population were "scattered over a wide geographical area" (Kumar, 2005, p. 127). It is axiomatic that PE practitioners are articulate in written expression and are also very busy people.

A question relating to HPE implementation was posted on Society of Health and Physical Educators (SHAPE) America's Exchange online network as a discussion topic. Exchange is a modern online platform used by SHAPE America members for sharing ideas and insights, discussion topics, discussions and resources. The question posed was:

> Can we promote HPE as a strong combination or will it be at the expense of either Health or Physical Education?

Underlying implementation questions emerging from the literature and offering guidance during analysis include:

- What is the structure for PE/HPE implementation?
- How do practitioners differentiate between PE terms?
- What discourses and ideologies exist in modern day PE?

While no dates are disclosed, regions are acknowledged to illustrate population representation. All nine teachers who answered the question were selected as participants and represented a range of regions across the country; five elementary teachers, one middle school teacher, one secondary teacher and two university educationalists.

(c) Initial Teacher Education Case Study (UK)

This research investigated how an award-winning UK primary school physical education specialist course/programme (Ofsted Outstanding) prepared their ITE students. The specific course was awarded "Outstanding" by the British Office for Standards in Education, Children's Services and Skills (Ofsted).

Table 10.3 Research framework for (c) Initial teacher education (ITE) case study (UK)

Epistemology	Constructionism
Theoretical perspective	Interpretivism
Research methodology	Case study
Data generating methods	Interviews; Semi-structured Reflective journal Observation Document analysis

> Ofsted is the Office for Standards in Education, Children's Services and Skills. We report directly to Parliament and we are independent and impartial. We inspect and regulate services which care for children and young people, and those providing education and skills for learners of all ages. From 2017 we will ensure that all of our work is evidence-led. (http://www.ofsted.gov.uk/about-us)

The case study university course was identified for having strong partnerships with local schools. Hence, it was the purpose of this study to investigate such course features (including partnerships as identified by Ofsted). The researcher in "qualitative research is often the primary instrument for data collection and analysis" (Merriam, 1998, p. 7), noting the differences between what was planned and what actually occurred (Anderson, 1990).

A successful programme/course with established partnerships in England was deliberately chosen, identified as an appropriate case study during online research when investigating PETE courses that qualified graduates to be generalist primary school teachers with a specialism in physical education. The researcher, who was employed in an Australian University (in the Faculty of Education) with expertise in HPE, was unable to find a similar primary course within Australia at the time. That is, a course specifically focusing on and specialising in primary education PETE did not exist in Australia (Lynch, 2013).

The methods engaged so as to enable precision of details within the chosen theoretical framework were semi-structured interviews, reflective journal, observations and document analysis (Table 10.3).

The researcher observed: open days for prospective students, which included course-specific information from the course manager; interviews for prospective students; discussed the course with present students; worked alongside course teacher educators (two lecturers and one technical assistant) and observed course lessons; consulted the two university lecturers involved in the PETE primary course and conducted semi-structured interviews. Meetings and discussions were held with the ITE course leader and the international coordinator for the faculty of education. Observations also included visiting local primary partner schools and having discussions with teachers.

An ethical clearance was granted from the Monash University Human Research Ethics Committee (MUHREC) where the researcher was employed. Also, permission from the UK University was granted for the recruitment of participants and research to be conducted.

(d) Teacher Preparation for Primary H/PE (Qatar, Middle East)

The purpose of this research was to investigate secondary education H/PE specialist teachers' preparation for teaching H/PE in the primary school. The case study was an English international school catering for children from 3 to 18 years of age (primary and secondary school). The case study international school was identified for having teachers who gained their ITE qualifications from the UK and Australia.

This qualitative study school was located in Qatar, Middle East, and specifically investigates:

- What are Secondary Education trained H/PE specialist teachers' perceptions of teaching H/PE in the primary school?

The methods engaged so as to enable precision of details within the chosen theoretical framework were semi-structured interviews, reflective journal and observations (Table 10.4).

All eight PE specialist teachers in the school were invited to participate and the six PE specialists who expressed interest were chosen. Observa-

Table 10.4 Research framework for (d) Teacher preparation (Qatar)

Epistemology	Constructionism
Theoretical perspective	Interpretivism
Research methodology	Case study
Data generating methods	Interviews; Semi-structured Reflective journal Observation

Table 10.5 Research framework for (e) National survey (Australia)

Epistemology	Constructionism
Theoretical perspective	Interpretivism
Research methodology	Questionnaire
Data generating methods	Ex-post facto survey (qualitative and quantitative questions)

tions were conducted to support the semi-structured interviews and were recorded as fieldnotes in a reflective journal.

An ethical clearance was granted from the MUHREC where the researcher was employed. Also, permission from the English International School was granted for the recruitment of participants and research to be conducted.

(e) National Survey (Australia)

This empirical research investigated school principal [head teacher] perceptions of how quality HPE in government primary [elementary] schools are implemented. Data were gathered using ex-post facto surveys embedded within an interpretivist paradigm. The questionnaire formulated open-ended questions providing principals [head teachers] with the opportunity to express themselves, and closed-ended questions where they chose the category that best described their school. The aim of this project was to investigate how best to prepare HPE specialist teachers within primary schools to enhance students' wellbeing (Table 10.5).

This study sits within an interpretivist paradigm, as educational leadership and the role of the school principal [head teacher] is socially complex and constructed: "Social realities are constructed by the participants in

their social settings" (Glesne, 1999). This theoretical framework enables the principal [head teacher] participants to share their stories on how HPE is taught and learned within the contexts of their schools, thus providing valuable insights into implementation. My Schools website (ACARA) https://www.myschool.edu.au/, the National Education Directory https://www.education.net.au/ and the Australian Schools Directory https://www.australianschoolsdirectory.com.au/ databases were used to access a large-scale sample of school and principal [head teacher] contact details. A large-scale sample of 376 principal participants from a cross section of Australian Government schools was chosen as participants, representing every state and territory, region and size.

Through this interpretivist paradigm, meaning that already exists was explored (inductive research); therefore, the surveys were ex-post facto design (Cohen, Manion, & Morrison, 2007) adopting a mixed methods approach. The open-ended and closed-ended questions on the ex-post facto designed survey represented problems identified in the Worldwide Surveys of School PE (UNESCO, 2014), Senate Inquiry findings (Commonwealth of Australia, 1992) and literature (Lynch, 2005, 2007; Morgan & Bourke, 2005, 2008). These issues were related specifically to resources, time and teacher qualifications/training.

The first ethical clearance granted was from MUHREC. Following, an ethical clearance was granted from all Australian state and territory Government Departments of Education (Victoria, New South Wales, Queensland, Tasmania, Australian Capital Territory, South Australia, Western Australia and Northern Territory). It was clearly stated in the "Explanatory Letter" that completing the questionnaire was voluntary and principals were under no obligation to consent to participation.

Data Analysis

An interpretivist data analysis strategy employed for the purpose of these research studies was narrative/descriptive analysis. Each case study and questionnaire investigates a different context, a different story, and this analysis strategy enables emphasis to be placed on the communication of these stories (Merriam, 1998). The interpretivist is committed to hearing

Table 10.6 Process of data analysis

Stage 1	Analysis of data for each case study/survey region using Wellington's table of analysis
Stage 2	Narrative/descriptive report given as an analysis for each case study/survey region
Stage 3	Cross-case analysis again using Wellington's table of analysis. This time analysing whole stories or story sections (surveys were analysed according to school size)
Stage 4	Narrative/descriptive report given for cross-case study/survey state region analysis

the stories of the participants, their perspectives of the world they experience (Taylor & Bogdan, 1998). The researcher attempts to capture the stories by interpreting the culture of the school through reported experiences, understandings and other collected data, resulting in a learning episode for both reader and researcher (Glesne, 1999). The narrative/descriptive analysis method has been deliberately chosen to illuminate each story/case study in this interpretive study; to identify "how" the physical dimension can be managed to best develop students' wellbeing.

The combined research projects employ multiple case studies (and questionnaires); hence, it is necessary to collect and analyse data from more than one school/school region (Merriam, 1998). The analysis process involves employing a narrative/descriptive report for each of the case study contexts (and questionnaire regions). During Stage One (Table 10.6), each interview, observation and journal entry (for each of the case studies), and questionnaires for each survey region, were analysed using Wellington's six-stage simplified version of the "Constant Comparative Method for Analysing Qualitative Data" (Wellington, 2000), (Fig. 10.1). This was followed by Stage Two (Table 10.6), where each individual case (and survey region) was described in a report. The constant comparative method of analysing qualitative data combines inductive category coding with a simultaneous comparison of all units of meaning obtained (Glaser & Strauss, 1967). As each new unit of meaning is selected for analysis, it is compared to all existing units and subsequently categorised and coded with similar units. If there are no similar units of meaning, a new category is formed (Maykut & Morehouse, 1994).

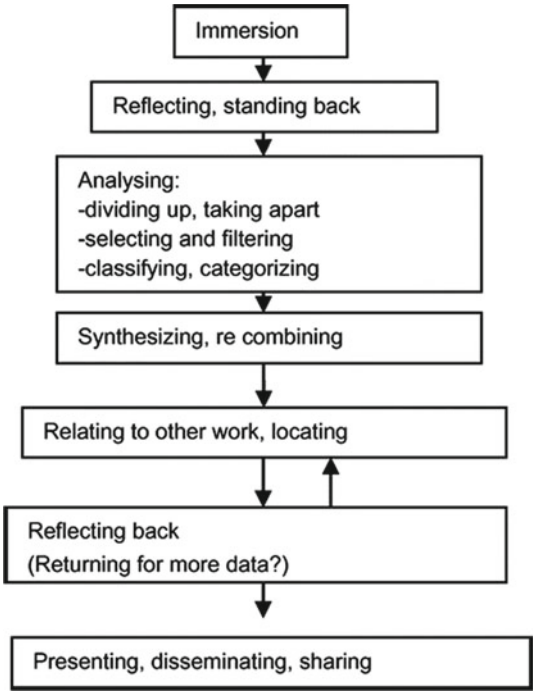

Fig. 10.1 General stages in making sense of qualitative data (Wellington, 2000, p. 141)

Stage Three (Table 10.6); the cross-case analysis began at the completion of an analysis report for each case/survey region (Stage Two, Table 10.6). "A qualitative, inductive, multicase study seeks to build abstractions across cases" (Merriam, 1998, p. 195). Repeating the same analysis process, Wellington's six stages were used to analyse the data across the case studies (surveys were analysed according to school size) which was again reported in Stage Four (Table 10.6) using a narrative/descriptive report.

Analysis is therefore iterative (Dey, 1993) and during cross-case and regional analysis, the researcher attempts through iteration to see processes that are common among the case studies/survey regions. Relating to the similarities in context can develop more sophisticated descriptions and more powerful explanations (Miles & Huberman, 1994).

Table 10.7 Coding of interview transcript

Interview transcript		Coding
I	What do you like about the Health & PE syllabus?	
P	Because I haven't had that much experience with it I don't know it that well so it's hard to say what I like and what I don't like—what I have seen of it I like the way that it's set out because it's fairly easy to follow, easy to read and I just like the way it's set out and structured	- Teacher familiarity with syllabus - Teacher confidence & knowledge - Syllabus likes & dislikes
I	How does the school manage to fit the demands of the Health & PE syllabus that is the three strands, into the crowded curriculum?	
P	We are fairly lucky here because we have a HPE Specialist who comes in and takes that strand of things for 40 minutes a week	- HPE specialist
I	So physical activities?	- Time afforded to strands
P	Physical activities, yep. In terms of Health and Personal Development, that's left up to the classroom teacher to do in your own planning. Personal Development is, we have included that into some of our units that we have done previously particularly with RE and with some of our SOSE, but with the Health and any other Personal Development you do, it's basically what you can implement into your everyday planning. Whether you do that with your buddy teacher or not, or whether you do that with your own class	- Teachers responsible for strands - Integration with other KLAs - Methods of implementation
I	Do you integrate or connect the curriculum with the Health & Personal Development to fit that in?	
P	We try to do it—I guess it's happened more with Personal Development than what has happened with Health. Just that Personal Development does seem to fit in well with some of the RE outcomes. Yes it would be good to integrate it but it's hard	- HPE Connections with Religious Education - Integration with other KLAs

During the analysis process, key themes were generated by employing a coding system. Table 10.7 illustrates a copy of a participant's coded transcript. In an attempt to answer the research questions, units of meaning were formed, coded and categorised with other similar units. This process occurred within each case study school/survey region and across case studies/survey regions. A detailed description of findings from the analysis process is provided in "findings and discussion" (cf. Chapters 11, 12, 13, and 14).

Confidentiality and anonymity were assured during the study as pseudonyms were assigned to protect the privacy of the participants. A conscious effort was made by the researcher to be fair in the generation of data, in the interpretation of data, in the formulation of theories and in the presentation of data. Member checks involved soliciting informants' views as to credibility of findings and these were utilised to confirm the plausibility and credibility of interpretations. Themes and conclusions were checked within the other data generating methods, for example, a finding during an observation was further explored during an interview. This addresses the issue of public disclosure of processes and gives the themes congruence and verisimilitude (Anfara, Brown & Mangione, 2002).

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