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Perceptions of large-scale, standardised testing in religious education: How do religious educators perceive The Bishops' Religious Literacy Assessment?

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CHAPTER FOUR
RESEARCH DESIGN AND METHODS

4.1   Introduction

This chapter describes the design and the methods utilised in this study to systematically address the research problem. The research problem identifies a specific lack of empirical evidence about how religious educators perceive *The Bishops' Religious Literacy Assessment* (BRLA). Addressing the research problem has involved an awareness of multiple contexts. For example, firstly, religious educators are teachers and school leaders of Religious Education (RE). In this study, 238 religious educators working in 65 Catholic schools across Western Australia (WA) were involved. Secondly, the nature of RE and the specific role that religious educators are required to play in implementing the RE curriculum in Catholic schools in WA. Thirdly, the nature of large-scale, standardised assessments (LSAs) in education, in particular, the nature of the BRLA as a LSA used as part of the RE curriculum. The religious educators in this study were directly involved with preparing students in Years Three, Five and Nine for the administration of the BRLA. Fourthly, how to best approach the study of human perceptions. Furthermore, how to best interpret the interplay between the religious educators' personal and professional experiences of teaching RE and using a LSA in education, and the influence of these experiences on the formation of their perceptions of the BRLA as a LSA used in RE. Given the complexity of addressing the research problem, a decision was made to adopt a pragmatic approach to research (Creswell, 2009; Crotty, 1998; Morgan, 2007) using mixed methods. The empirical evidence generated from the design and methods used support local, national and international research about the quality of teaching and assessment practices in RE adopted by religious educators working in Catholic schools.

4.2   The Presentation of the Chapter

Table 4.1 outlines the structure of this chapter. The chapter begins with a theoretical framework that supports the research design and the decisions taken to conduct the study. The theoretical framework highlights the essential elements of the research methodology used to address the research problem. The body of the chapter discusses how the theoretical framework informed decisions that led to using mixed methods research. The chapter

concludes with an explanation of the ethical considerations of the study and details about how the key research findings are presented within the chapters that follow.

Table 4.1

Overview of Chapter Four: Research Design and Methods

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4.3   The Research Design

The research design for this study is informed by the nature of the research problem (Creswell, 2009; Punch, 2009). The general research question (GRQ), three specific research questions (SRQs) and various contributing questions have been developed to address the research problem. A theoretical framework outlining the philosophical perspectives considered to address the research problem (Denzin & Lincoln, 2005) was also developed. A pragmatic approach to research (Crotty, 1998; Morgan, 2007) is the philosophical stance taken to investigate the religious educators' perceptions of the BRLA and mixed methods research is the associated strategy aligned to the stance (Teddlie & Tashakkori, 2009). The pragmatic approach in this study is the epistemological worldview underpinning the theoretical perspectives and methods employed to investigate the religious educators' perceptions of the BRLA. The reason for the chosen research design is because the research problem identifies the investigation of the religious educators' perceptions of the BRLA as a

complex phenomenon involving multiple disciplines. Also, there are multiple strategies and techniques from various research perspectives that are required to understand and interpret the contexts. The outline about the research design begins with the research questions.

4.3.1 The research questions. The research problem focuses on a need to explore the religious educators' perceptions of the BRLA based on the influencing realities shaping those perceptions. This focus is therefore not on the BRLA itself but rather the religious educators' perceptions of the BRLA as expressed symbols of their "subjective understandings" (Berg, 2004, p. 8; Crotty, 1998). Given the study aimed to address the research problem, an in-depth investigation of the multiple realities grounded in the religious educators' experiences, knowledge and understandings of the BRLA seemed appropriate. The investigation involved understanding how the religious educators formed their perceptions and the processes they used to express their perceptions. Furthermore, how the religious educators as teachers and school leaders of RE perceived the BRLA in relation to student learning, teaching practices, assessment practices and potential leadership in RE is considered important. To address the research problem a GRQ and three SRQs were developed.

4.3.1.1 The general research question. The GRQ for the study is: How do religious educators who work in Catholic schools in Western Australia perceive *The Bishops' Religious Literacy Assessment* as a large-scale, standardised assessment in Religious Education?

This is an open-ended question (O'Leary, 2010) that allows for a broad, exploration of the research problem. The GRQ considers the full extent of the interplay between the religious educators' experiences of the BRLA and the process whereby this LSA influences and is influenced by the local social contexts (Gall et al., 2007; Nagy Hesse-Biber, 2010) to which the religious educators belong.

4.3.1.2 The specific research questions. Three SRQs were used in the study. Each SRQ consists of contributing questions. The SRQs explicitly targeted the religious educators' perceptions of various aspects of the BRLA, within the context of the RE curriculum taught in Western Australian Catholic schools. The SRQs generated findings that address the GRQ.

The first SRQ is: How do religious educators perceive the purpose and role of the BRLA as a large-scale, standardised assessment in Religious Education? This question

helped to identify what the BRLA meant to the religious educators in terms of its value and effectiveness as a LSA used to measure student learning in RE.

The second SRQ is: How do religious educators respond to the administration and implementation of the BRLA as a large-scale, standardised assessment in Religious Education? This question helped to explore three aspects. Firstly, how the religious educators organised, prepared and supported themselves, their students and other religious educators to administer the BRLA. Secondly, how they considered follow-up activities to the administration process such as the review of test items and the analysis of student performance data from the BRLA. Thirdly, how they interpreted and acted upon the data within their role and capacity as teachers and school leaders of RE.

The third SRQ is: How do the religious educators' perceptions of the BRLA influence their teaching and assessment practices in Religious Education? This question and the subsequent contributing questions helped to identify how the religious educators perceived the BRLA within the broader contexts of RE and the use of a LSA in RE. The contributing questions particularly focused on how the religious educators used the BRLA, including the student performance data, to guide and inform curriculum planning and policy decisions in RE.

An alignment between the research problem and the research questions exists. That is the research questions were developed and guided by the theoretical framework. The framework helped inform how best to observe, identify and interpret the religious educators' real-world experiences, in terms their teaching of RE and their use of the BRLA as a LSA. The questions focused on eliciting the range of emotions, thoughts and convictions, personal values, choices, judgements, opinions and understandings (Blumer, 1969; Charon, 2010) that are considered the events within the religious educators' real-world experiences (Ashworth, 2008, p. 15). These events were investigated using a pragmatic approach to research that employed quantitative and qualitative strategies, techniques and procedures. An elaboration of the theoretical framework, the pragmatic approach to research used in this study and the different components that align to the approach is presented in the next section.

4.3.2 The theoretical framework. Figure 4.1 represents the theoretical framework developed for this study. This framework supports the exploration of the research problem and the research questions developed to address the problem. The theoretical framework is a structure aligned to the pragmatic approach to research that connects theory and practice (Tashakkori and Teddlie, 1998). As a structure, the framework highlights the continuous

relationship that existed throughout the study "between methodology and epistemology and methodology and methods" (Morgan, 2007, p. 68). Three main elements feature within this integrated theoretical framework.

The first element is the pragmatic approach to research that according to Thayer (1982) is founded in the field of social science and used in the seminal works of Pierce, James, Dewey, and Mead. The approach draws upon a Social Constructionism worldview where, as Crotty (1998) argues, realist and relativist perspectives are considered one in their quest to make meaning (p. 63). Crotty points to George Mead who identifies reality and the construction of reality as not confined and where "It is a world of intersubjectivity, interaction, community and communication, in and out of which we come to be persons and to live as persons" (p. 63). The pragmatic approach was considered appropriate for this study because it is not paradigm driven, rather a philosophical stance focused on problem solving (Morgan, 2007). In research, the pragmatic approach welcomes multiple assumptions about knowledge, strategies of inquiry and structural procedures aimed at solving research problems (Creswell, 2009; Greene, Kreider, & Mayer, 2005; Punch, 2009).

The second element of the theoretical framework is mixed methods research (Creswell & Plano Clark, 2007; Johnson & Onwuegbuzie, 2006). This element considers a convergence of approaches to research (Nagy Hesse-Biber, 2010; Tashakkori & Teddlie, 1998) used to explore the social behaviour of the religious educators. As explained by Crotty (1998), recognising various approaches and "invoking one or several of them may help us to set forth the process we plan to follow and, even more importantly, to expound the process we have in fact followed" (p. 216). The mixed methods research utilised in this study took advantage of the representative and generalisable approaches used in quantitative research and the in-depth and contextual approaches used in qualitative research (Greene & Caracelli, 2003). Neither the qualitative nor the quantitative approaches used in the study are considered more important than the other (Punch, 2009, p. 4). Furthermore, neither are the paradigms, positions or perspectives of either method of research considered more important than the other. Rather the strategies, techniques and procedures within each research method are considered significant and useful for investigating the religious educators' perceptions of the BRLA. Quantitative techniques such as descriptive statistics (Babbie, 2008; Gravetter & Wallnau, 2007; Liu, 2014) and Rasch analysis (Andrich, 1988; Wilson, 2005) that draw from a positivistic perspective to research were considered and used in the first phase of the study. Qualitative techniques drawn from Social Constructionism (Creswell, 2009; Crotty, 1998)

and associated Interpretivism (Johnson & Onwuegbuzie, 2004) were considered in the first and second phases of the study.

Research Problem

General Research Question
How do religious educators who work in Catholic schools in WA perceive the BRLA as a LSA used in RE?

Specific Research Questions
SRQ 1 How do religious educators perceive the purpose and role of the BRLA as a LSA in RE?
SRQ 2 How do religious educators respond to the administration and implementation of the BRLA as a LSA in RE?
SRQ 3 How do the religious educators' perceptions of the BRLA influence their teaching and assessment practices in RE?

Epistemology
Pragmatic Approach to Research

Research Design
Mixed Methods Design
Quantitative (Positivism)
Qualitative (Interpretivism)
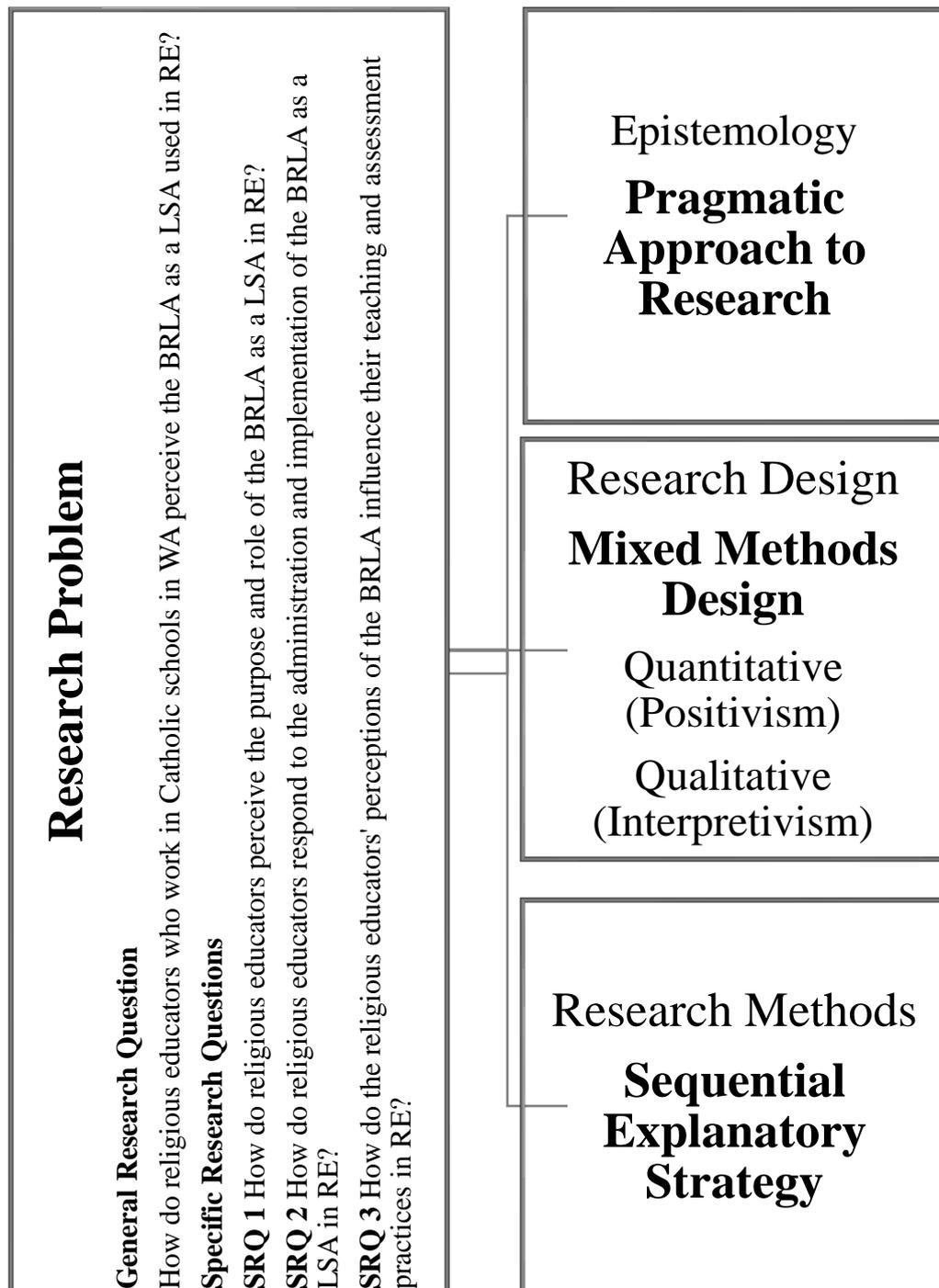
Research Methods
Sequential Explanatory Strategy

Figure 4.1. The theoretical framework

The third element of the framework is the research methods. Specific to the methods in this study is an adapted version of the sequential explanatory strategy model (Creswell, 2009, p. 211). Consistent with the pragmatic approach to research, the mixed methods model was used to collect, process and analyse quantitative and qualitative survey data (Babbie, 2008) from religious educators in two sequential phases. The purpose for using such a model was to "better advocate for participants" and "better understand" "artefacts" (Charon, 2010, p. 213) such as the BRLA within the context of the religious educators' experienced realities of teaching RE and using LSAs in RE. Unlike similar models, this adapted model does not give priority to the quantitative data nor the methods used to collect and analyse that data. Instead, an online questionnaire was used in the first phase to collect numeric and written data from the 238 religious educators. The data were quantitative and qualitative in nature. In the second phase, qualitative data were collected using semi-structured, individual and group interviews. A total of 43 of the 238 religious educators were involved. The different data sets from both phases were collated, processed and analysed separately and later combined and integrated. The pragmatic approach used in this study ensured the continuous alignment of these research methods with the research design.

4.3.3 The pragmatic approach to research. The pragmatic approach is the underlying worldview adopted to investigate the religious educators' perceptions of the BRLA. For this study, the pragmatic approach is defined in terms of the researcher's "worldview" and the "basic set of beliefs or assumptions" that guided the researcher's inquiry (Creswell, 1998, p. 74) to solve the research problem (Crotty, 1998; Kuhn, 1970). The chosen worldview considers an "optimistic and progressivist" (Crotty, 1998, p. 74) approach for addressing the research problem, allowing for diversity in planning and implementing research (Creswell, 2007, pp. 22-23).

The pragmatic approach derives from the assumption introduced by Charles Sanders Peirce and William James that multiple realities exist and are shaped by physical and social contexts (Thayer, 1982). Miles et al. (2014) state "that social phenomena exist not only in the mind but also in the world and that some reasonably stable relationships can be found among the idiosyncratic messiness of life" (p. 7). This study acknowledges this assumption that "reality is socially constructed" (Nagy Hesse-Biber, 2010, p. 126). The study sought to understand the social reality of the religious educators in terms of their experiences and the meaning they attached to those experiences. Furthermore, the study draws upon the works of pragmatists such as John Dewey who advocated for scientific methods of studying logic and

the acquisition of knowledge; and George Herbert Mead, the forefather of Symbolic Interactionism (Blumer, 1969), as the pragmatic strategy for interpreting the constructed, personal and social realities of people (Charon, 2010). For this study, Symbolic Interactionism is the strategy used to investigate and interpret the religious educators' expressions about the BRLA.

Three specific assumptions or beliefs are relevant to this study. First, the belief that not only is reality constructed, reality is also consistently changing, has multiple layers and can be further "constructed by the individuals involved in the research situation" (Creswell, 1998, p. 76). Reality is considered not as one objective truth waiting to be found, rather multiple and different ways individuals perceive objects around them as they interact with the objects and with others also interacting with the objects (Charon, 2010). According to this belief, the realities that the religious educators held about the BRLA are assumed as having been constructed and not discovered. In addition, the assumption is made that the religious educators generated and transmitted knowledge and meaning through their real-world experiences (Charon, 2010). The assumption is that the religious educators' experiences are their multiple realities of the BRLA.

The first belief suggests that reality is neither simply objective truth or simply subjective truth. This belief rejects forced dichotomies in research claiming a study requires to take a subjective or objective perspective. As Morgan (2007) argues such stances are "artificial summaries of the relationship between the researcher and the research process … inductive results from the qualitative approach serve as inputs to the deductive goals of the quantitative approach and vice versa" (Morgan, 2007, p. 71).

The second belief draws on Crotty's (1998) and Guba and Lincoln's (1998) arguments about the nature of knowledge and truth. Guba and Lincoln (1998) argue for a "relationship between the knower or would be knower and what can be known" (p. 201). This belief attempts to close the gap between competing ontologies, epistemologies, theoretical perspectives and methodologies and methods. As Crotty (1998, p. 3) points out, the different theoretical terms are complementary and mutually dependent and "to talk about the construction of meaning [epistemology]" is, for example, "to talk about construction of meaningful reality [ontology]" (p. 10).

The implication for these beliefs is threefold: firstly, the study adopted both an objectivist and a subjectivist position about the nature of knowledge and how to scientifically discover truth and the meaning of truth (Crotty, 1998, p. 8); secondly, all attempts were made in the investigation of the religious educators' perceptions of the BRLA to maintain

objectivity without having to impose a particular set of ethical judgements or cultural values (Morgan, 2007; Thayer, 1982); and thirdly, the study embraced a range of strategies, techniques and procedures applicable to multiple fields and disciplines studying the research problem. The use of different techniques, for example, strengthened the investigation and led to the discovery about the religious educators' perceived realities of the BRLA. The emphasis for the discovery was on achieving shared meaning and joint action (Crotty, 1998; Kuhn, 1970) made possible by mixed methods research.

4.3.4 Mixed methods research. A mixed methods design (Creswell & Plano Clark, 2007; Green, Kreider, & Mayer, 2005; Tashakkori & Teddlie, 1998, 2003) was used in this study to accommodate for the assumed multiple realities held by the religious educators about the BRLA. This type of design is well aligned to the pragmatic approach to research (Creswell, 2009; Punch, 2009). Traced back to the work of Campbell and Fiske (1959), mixed methods research is considered the "third alternative" to social science research (Johnson, Onwuegbuzie, & Turner, 2007). As an alternative to just quantitative or just qualitative research, mixed methods research offered the study an opportunity to combine the use and strengths of the two classic forms of research (Johnson & Onwuegbuzie, 2004).

From a pragmatic perspective, the combination of quantitative and qualitative inquiry rejects dualism and competing ideologies, seeking only to achieve a common ground and compatibility between philosophies and their methods of research (Punch, 2009). When a common ground is achieved, the similarities between the methods, as the basis for the need to combine their use becomes obvious (Bryman, 2004; Johnson & Onwuegbuzie, 2004; Morgan, 2007). Furthermore, if the sharing of qualitative and quantitative methods is carried out in a scientific manner, "communities of practice" are established (Kuhn, 1970, p. 178) and the information gained from both methods is exchanged and, in turn, used to reinforce the research.

The mixed methods design was used in this study for three reasons. Firstly, to overcome the possible "intrinsic bias" from "single-methods, single-observer, and single-theory studies" (Denzin 1989, p. 307). The design allowed for a substantive representation of the religious educators' "interests, voices, and perspectives" (Greene & Caracelli, 1997, p. 14). Secondly, to combine and make full use of "multiple observers, theories, methods and data sources" (Denzin 1989, p. 307). The complementary use of both quantitative and qualitative strategies for data collection and analysis (Miles & Huberman, 1994) enhanced the integrity of the overall study (Cohen, Manion, & Morrison, 2005) by providing breadth

and depth to the findings (Bryman, 2004). Furthermore, the variations (Creswell, 2009) in the religious educators' perceptions of the BRLA are believed to have been captured, effectively analysed and reflected through the findings (Denzin, 1978) based on the use of the mixed methods design. Thirdly, through a process of triangulation applicable to mixed methods research (Silverman, 2013), the combination of methods allowed for the possible "convergence of data collected" (Nagy Hesse-Biber, 2010, p. 3). The assumption is that the credibility of the research findings was enhanced (Creswell, Plano Clark, Gutmann, & Hanson, 2003) by qualitative methods that supported and validated the quantitative methods. The goal was always to objectively integrate (Bryman, 2006) the research findings by identifying consistencies and inconsistencies in the methods. An explanation of the complementary use of both methods in this study is provided next.

       4.3.4.1 The quantitative methods. The study uses mathematical techniques that draw from positivism (Crotty, 1998; Babbie, 2008). These techniques share a common set of principles and logic, developed by the natural sciences and the notion of science. Derived from the natural sciences, they can also address the collection, processing and analysis of numeric data for social science research (Creswell, 2009; Punch, 2009). The techniques belong to inquiry methods tracing back to Auguste Comte (Cohen et al., 2005) who identified society as a phenomenon that can be studied scientifically (Babbie, 2008). Examples of the quantitative techniques used in this study includes descriptive statistics (Gravetter & Wallnau, 2007; Liu, 2014) and Rasch analysis (Andrich, 1988; Wilson, 2005).

       The purpose of using such techniques is to identify patterns in social behaviour to ascertain "laws of human behaviour" (Nagy Hesse-Biber, 2010, p. 126). According to Creswell (2009), to understand quantitative research is to begin with an understanding of variables. He states:

> A variable refers to a characteristic or attribute of an individual or an organisation that can be measured or observed and that varies among the people or organisation being studied …. A variable typically will vary in two or more categories or on a continuum of scores, and it can be measured or assessed on a scale. (p. 50)

In this study, the religious educators' perceptions of the BRLA were initially identified and measured using descriptive statistics. The religious educators' perceptions were recognised as characteristic of the choices they made on Likert scale items in an online questionnaire. Rasch analysis was used in the first pilot study to evaluate and provide quality assurance for the Likert scale items. The data generated from the pilot study became a criterion or part of a

larger construct map for items design (Andrich, 1988). This particular analysis attempts to "describe a way to relate to the scored outcomes for structured items in online questionnaires" in a way that complements the classical test theory used to generate descriptive statistics (Wilson, 2005, p. 85).

The quantitative research methods used in this study draw on two assumptions. Firstly, that quantifiable observations of a phenomenon can be made and measured using statistical analysis. Descriptive statistics were used in this study to summarise, organise and simplify the numeric data (Gravetter & Wallnau, 2007; Liu, 2014) gathered from the religious educators. This analysis allows for the establishment of reliable and valid knowledge about how phenomenon works (Babbie, 2008; Cohen et al., 2005). The analysis is based on a "sophisticated" interpretation that Babbie (2008) asserts is about applying "rational understanding" to "even non-rational human behaviour" (p. 42), and "despite inescapable subjectivity or our experiences … seeks an agreement on what is 'really real' and what is objectively so" (p. 43). The premise is that objective reality exists that is independent of any individual's subjective experience.

The second assumption is that the quantitative techniques used in this study are based on a probabilistic rather than a deterministic logic (Andrich, 1988; Rasch, 1960). For this reason, Rasch analysis was also used in this study. Rasch analysis is aligned to the probabilistic assumptions of reality as part of the pragmatic approach to research (Punch, 2009). This type of analysis is used in the areas of educational assessment and psychological measurement as a framework described by a mathematical function to attempt to measure human performance, characteristics, behaviours or attributes (Andrich, 1988; Wilson, 2005; Wu, Tam, & Jen, 2016). For the purpose of this study, a one item or parameter Rasch model was used to calculate the total score across all the structured Likert scale items in the online questionnaire. The aim was to objectively identify and measure the religious educators' perceptions (as attributes) of the BRLA. However, in reality, human behaviour in the form of perceptions is complex to measure with complete certainty (Wilson, 2005).

Rasch modelling is based on a latent trait theory developed by Georg Rasch, a Danish mathematician in which unobservable characteristics or attributes of people can be indirectly measured (Rasch, 1960; Wu, Tam, & Jen, 2016) using, for example, Likert scale items. In this study, the one parameter Rasch model was used to predict the probability of a sub-sample group of 20 religious educators choosing the latent trait (an attribute) and plotting the item difficulty or location of that trait. A test of fit between the data and the model was calculated

to arrive at a total score. The total score of the items, characterises each of the religious educators who completed the questionnaire.

It is intended that the data fit the model rather than the model fit the data as assumed in traditional analysis (Andrich, 1988; Wu, Tam, & Jen, 2016). To this end, the use of Rasch analysis in this study helped to investigate the structure of the religious educators' responses further to statistical descriptions of those responses. The probability of a relationship between the religious educators' observable, chosen categories to each of the Likert scale items and their unobservable characteristics or perceptions relating to those categories was identified. This investigation also helped to determine whether the constructed online questionnaire items were effective in targeting the intended similar but wider audience of the 238 religious educators involved in the study.

4.3.4.2 The qualitative methods. This study considers Interpretivism (Crotty, 1998; Johnson & Onwuegbuzie, 2004) as the perspective to be used to develop and analyse the qualitative components of the study. Interpretivism draws on Max Weber's assumptions that the natural world in which people live and experience reality is all part of one human world, and whereby, natural and social realities can be studied together (Neuman, 2011). Crotty (1998) argues that Weber specified that "any study of society … has to be substantiated by empirical evidence" (p. 69). Associated with Weber's assumptions is that reality is independent of any consciousness (Creswell, 2009).

From the Interpretivist perspective, the meaning of reality is important and the meaning that people make of their multiple realities derives from social interaction. Social patterns result from the meaning that comes from mutual and social processes of interaction (Berger & Luckmann, 1966). Interactions within the natural world involve "social practice" or a socialisation process (Hyde, 2015, p. 295). Furthermore, the assumption is that the cooperation of people over time develops culture and is considered symbolic and influential on how people behave in society (Charon, 2010). Knowledge and meaning is constructed by individuals and groups of individuals within historical and social contexts (Crotty, 1998, p. 42), as well as "historical and cultural settings" (Creswell, 2009, p. 8; Gall et al., 2007). Lincoln and Guba (1985) argue that "realities are wholes that cannot be understood in isolation from their contexts" (p. 39).

As argued by Lincoln and Guba (1985), there are other related assumptions within the Interpretivist perspective. Firstly, that "multiple constructed realities" exist and that "inquiry into these realities will inevitably diverge (each inquiry raises more questions than it

answers)" (p. 37). Secondly, that "knower and the known are inseparable" (p. 39). The researcher is considered the primary data gathering instrument to fully understand, respond and describe the complex interactions taking place. Thirdly, "the investigator and the object of investigation are interactively linked so that the 'findings' are literally created as the investigation proceeds" (p. 207). These assumptions are closely aligned to the pragmatic approach to research (Crotty, 1998). Implications for this study are evident in the ethical considerations.

The Interpretivist perspective also provides a structure for understanding and explaining the constructed realities (Berger & Luckmann, 1966; Crotty, 1998) of the religious educators about the BRLA within different contexts. For example, the CEOWA develops and implements a state-wide standardised assessment called the BRLA (Catholic Education Office of Western Australia, 2006a). As a result of the introduced BRLA, it is assumed that stakeholders such as the CEOWA, school-based religious educators, students and their parents develop narratives about the assessment. In turn, these narratives may have changed the BRLA into a "created artefact" (Charon, 2010, p. 213), taking on a life of its own, perhaps initially intended or unintended by the CEOWA. As an artefact the BRLA may have started to become a feature of the school community's reality rather than a simple construction based on interactions with people. Through communication about the BRLA between school community members, there is an assumption that language was exchanged, and relationships developed. At this point, the BRLA may have become the artefact for the individuals and the community. Hence, the investigation that led to the religious educators' perceptions of the BRLA considered each of the religious educators' historical, social and cultural contexts and how these contexts may have influenced their different conscious understandings and associated meanings about the BRLA.

This study uses Symbolic Interactionism as the Interpretivist lens to investigate the historical and cultural settings that are assumed to have shaped the religious educators' perceptions of the BRLA. Symbolic Interactionism is used to specifically analyse and interpret the religious educators' expressions of their perceived realities of the BRLA. As a qualitative research lens for this study, Symbolic Interactionism helped identify and understand the process by which the religious educators' knowledge and meaning of their reality of the BRLA were interpreted, conveyed and acted upon. The lens was used to investigate the religious educators' perceptions of the BRLA as they were generated and transmitted within the contexts of their role as teachers and school leaders responsible for implementing the RE curriculum. These religious educators were directly involved with the

BRLA and interacted with others also involved with the assessment, in particular, the students in their care.

Symbolic Interactionism is a sociological paradigm that can be traced back to the pragmatic philosophies of Dewey, Mead and Blumer (Charon, 2010; Crotty, 1998). This study draws on Symbolic Interactionism because as a pragmatic strategy and Interpretivist lens for qualitative research it recognises people as active beings, thinking, creative, self-directing, defining dynamic actors who have abilities to use symbols, to define and to alter the environment resulting in a unique being in nature (Charon, 2010, p. 34). People are believed to express their individual and subjective understanding of reality using a "set of symbols" (Liamputtong & Ezzy, 2005, p. 20). Cohen et al. (2005) argue that symbolic interactionists do not focus on the individual rather they "direct their attention at the nature of interaction, the dynamic activities taking place between people" (p. 26). Crotty (1998) argues that "Symbolic Interactionism explores the understandings abroad in culture as the meaningful matrix that guides our lives" (p. 71). He quotes the pragmatists and symbolic interactionists Dewey and Mead to say that "in this understanding of things, experience and culture come to be almost interchangeable terms" (p. 74). The pragmatic study of human perceptions is also aligned with the assumptions of Dewey and Mead (Charon, 2010). The next section outlines the context of perceptions in this study from a pragmatic approach to research.

4.3.5 The study of perceptions. For the purpose of this study, "perception" refers to a concept within a broad pragmatic and multidisciplinary reference used in sociological social psychology to examine what it means to be human (Charon, 2010). The term "perception" comes from the Latin verb *perceptio* (Stevenson & Waite, 2011), referring to a dual process of acquiring knowledge through sensory stimulation and experience, resulting in information to be managed and interpreted by the human brain (Bandura, 1993; Maund, 2003). The management and interpretation of the information by the brain is the process of perceiving. However, this study recognises the religious educators' perceptions of the BRLA as more than the interpretation of sensory stimuli. The study acknowledges, within the context of Symbolic Interactionism, Charon's (2010, p. 121) definition of perception as described by Mead (1936) and Shibutani (1961).

Mead calls "perception" the active ongoing process of selecting objects out of the environment, those objects that can be used to achieve the actor's goals. Perception thus makes objects into *social objects* in a situation: "Stimuli, therefore do not initiate activity,

they are pivots for redirection" (Shibutani, 1961, p. 68). The individual acts in a world that has meaning for him or her at the moment. Perception and definition is selective and ongoing. To Mead such thinking is the most important part of what people do and the larger part of that thinking is a process of discovering "just what it is that people ought to do attacked, what was to be avoided" (Mead, 1936, p. 403).

The assumption in this study is that the religious educators may not have sensed their environment directly; rather they defined each situation they found themselves in. The environment they found themselves in may have existed but the definition of that environment by each of the religious educators was important for the underlying understanding of their perceptions and for coming to those understandings. Therefore, the role of perception through social life as an instrument of the social construction of reality was also considered (Charon, 2010; Friedman, 2011). The study focused on understanding how the religious educators' perceptions of the BRLA were formed within their individual minds as they continuously interacted with themselves, others and things around them.

The expression of the religious educators' perceptions of the BRLA was considered a unique response in the form of thoughts, words and actions based on their level of awareness of a particular reality or set of realities (Charon, 2010). The religious educators' perceptions of the BRLA were the link between their thoughts and their experiences of teaching RE and using LSAs within their school settings. The study of perceptions in this regard recognises perceptions as a social process that used symbols. Within the context of the Symbolic Interactionist, perception is one way that symbols function: "The symbol translates the world from a physical sensed reality to a reality that can be understood, interpreted, dissected, integrated, and tested. Between reality and what we see and do stands the symbol" (Charon, 2010, p. 59). Symbolic communication as language guides people through what their senses experience. Language is a person's means of thinking (Hertzler, 1965), and thinking is part of the perceptual process. As people use language, they identify their perspectives as the lens and framework from which they view their perceived reality (Shibutani, 1955). As Charon (2010) explains, "This lens alters every aspect of our being" (p. 64).

Variables that influence perceptual functioning include gender, age, employment role of responsibility and culture. Bandura (1986, 1993, 1997, 1999) believes that the acquisition of knowledge and meaning is regulated and controlled by people's realities of the world around them in multiple ways. Vygotsky (1978, 1986) argues words and symbols of a language are regarded as the mediated means by which culture is transmitted. Bruner (1996) proposes culture provides the tools to communicate by which people organise and understand

their world. Johns and Saks (2011) explore organisational behaviour and the influence that organisations have on the formation of perceptions. Gutiérrez and Rogoff (2003) argue the need for holistic views of people's perceptions in terms of experience that give consideration to cultural and historical contexts. This study of the religious educators' perceptions of the BRLA considered such variables as criteria and attempted to identify key differences between the perceptions of individual and groups of religious educators. The study focused on exploring how the religious educators' perceptions may have influenced their teaching and assessment practices in RE. Given that the religious educators worked in Catholic schools, the study was designed to gather data about the level of influence that arose from the religious educators' interactions with their students and other school-based religious educators. Also, the study explores how the religious educators prepared students for the administration of the BRLA and were affected by such preparations.

Four assumptions about perceptions are considered in this study from the perspective of a pragmatic approach to research. Firstly, religious educators, as people, have minds that work by processing, organising, retrieving information and articulating that information via behaviours. In this study, the observed behaviours are identified as the symbolic language used by the religious educators. Secondly, the symbolic language used by the religious educators was interpreted as their perceptions of the BRLA. Thirdly, these perceptions were investigated within the contexts of teaching RE and using LSAs. Fourthly, the religious educators' perceptions were understood to be informed by their real-world realities or individual and collective professional experiences. How the religious educators' experiences related to other human experiences was considered. In light of these assumptions, considerations were raised about how the properties of the religious educators' experiences could best be determined to address the research question. The following section describes the research methods used in response to these considerations to conduct this study about religious educators' perceptions of the BRLA.

4.4   The Research Methods

Figure 4.2 is an elaboration of the research methods identified in the theoretical framework (Figure 4.1). The figure shows a sequence of events involved in the collection and analysis of data for this study. This sequence of events is an adaptation of the "sequential explanatory strategy" used in mixed methods research (Creswell, 2009, p. 211). The strategy outlines a combination of methods involving "the collection, analysis and integration of quantitative and qualitative data in a … multiphase study" (Hanson, Creswell, Plano Clark,

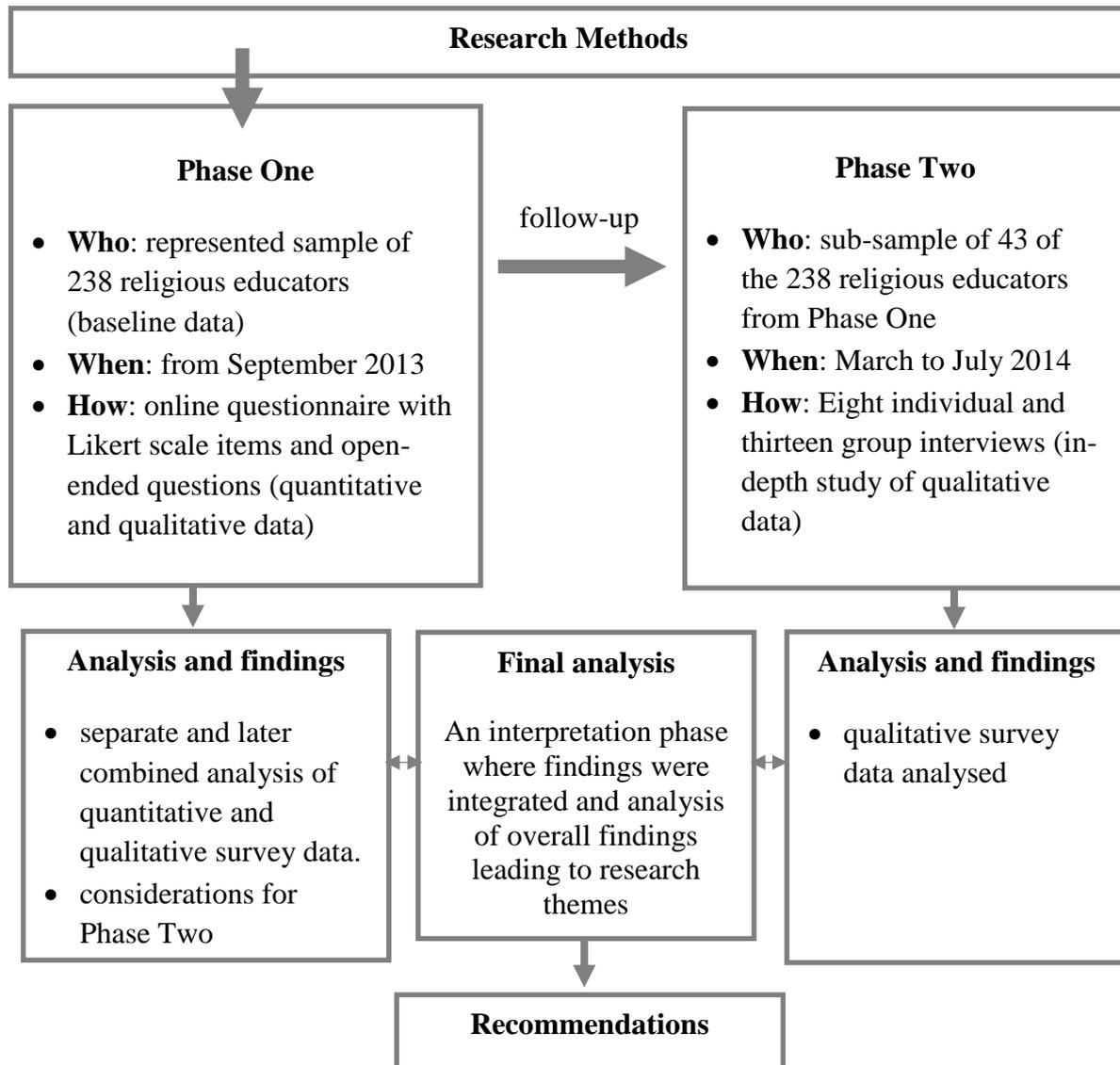Petska, & Creswell, 2005, p. 224). A timeline of the major events of the study is available in Appendix C.

Research Methods		

Phase One

- **Who**: represented sample of 238 religious educators (baseline data)
- **When**: from September 2013
- **How**: online questionnaire with Likert scale items and open-ended questions (quantitative and qualitative data)

follow-up →

Phase Two

- **Who**: sub-sample of 43 of the 238 religious educators from Phase One
- **When**: March to July 2014
- **How**: Eight individual and thirteen group interviews (in-depth study of qualitative data)

Analysis and findings

- separate and later combined analysis of quantitative and qualitative survey data.
- considerations for Phase Two

Final analysis

An interpretation phase where findings were integrated and analysis of overall findings leading to research themes

Analysis and findings

- qualitative survey data analysed

Recommendations

Figure 4.2.   The sequential explanatory strategy (adapted from Creswell, 2009, p. 211)

There were two interconnected phases of data collection and analysis. Quantitative and qualitative response data from 238 religious educators were collected in Phase One using an online questionnaire. Numeric data were collected from the religious educators' responses to Likert scale items. Written data were collected from the religious educators' open-ended responses. The analysis of the quantitative data was carried out separately from the analysis of qualitative data. Later, the findings from both data sets were combined, interrogated and

integrated. Considerations for follow-up surveying (Creswell, 2009; Nagy Hesse-Biber, 2010) of the religious educators based on the analysis of findings from Phase One of the study were applied in Phase Two. Qualitative responses were collected from 43 of the 238 religious educators in Phase Two through semi-structured individual and group interviews. The analysis of the qualitative data was conducted separately to the data sets from Phase One and later reviewed, considering the findings from Phase One. The use of different data sets from within each phase and across the phases complemented each other and were interpreted accordingly (Liamputtong & Ezzy, 2005). The combination of findings from both phases of the study led to research themes. These themes emerged from the common response patterns identified in the findings and the inferences made from the findings (Teddlie & Tashakkori, 2003).

4.4.1   Methods of data collection. The data collection period began in August and September 2013 and was completed by July 2014. During this period, the religious educators had a heightened experience of the BRLA because they had been directly involved with the administration of the 2013 BRLA with students in Years Three, Five and/or Nine. Response data were collected from a represented sample size of 238 (39.6%) religious educators working in 65 (44.2%) primary, secondary or composite Catholic schools within metropolitan and regional areas across the four Western Australian Catholic dioceses. This sample comes from an estimated target population of 600 classroom teachers, school leaders and principals working in 147 Catholic schools in WA who participated in the BRLA in 2013 and 2014 (Catholic Education Commission of Western Australia, 2014). Throughout the thesis, the uppercase letter *N* represents the total sample size of 238 religious educators. The lowercase letter *n* represents a sub-set of the total sample. According to Cohen et al. (2005) the sample size in this study is substantial enough to enhance the trustworthiness of the findings.

Table 4.2 identifies the location and type of Catholic schools in WA who participated in the BRLA in 2013 and 2014. The religious educators who worked in these schools were responsible for implementing the RE curriculum. They were also directly involved with preparing students in Years Three, Five and Nine for the administration of the BRLA (Catholic Education Office of Western Australia, 2013). The following section describes the purpose of the data collection phases and the survey measures used in each phase to collect the response data from the religious educators. The design and development of the surveying items and the trialling procedures employed to evaluate the items is included.

Table 4.2

The Number of Catholic Schools in WA Represented in the Study

Schools	Catholic Dioceses in Western Australia				Total (%)
	Bunbury	Broome	Geraldton	Perth	
Primary	5 of 22	1 of 3	3 of 7	36 of 75	45/107 (42.1)
Secondary	2 of 2	0 of 0	2 of 2	12 of 22	16/26 (61.5)
Composite	0 of 3	1 of 1	1 of 1	2 of 9	4/14 (28.6)
Total (%)	7 of 27 (25.9)	2 of 4 (50.0)	6 of 10 (60.0)	50 of 106 (47.2)	65/147 (44.2)

Note. Composite schools offer Kindergarten (age 3) to Year 12 (age 18) classes.

4.4.1.1 Phase One. In Phase One, quantitative and qualitative response data from the 238 teachers and school leaders of RE were gathered using an online, semi-structured questionnaire. The structure of the questionnaire followed that recommended by Miles and Huberman (1994, p. 41) in the use of semi-structured questionnaires. The religious educators were given opportunities in the questionnaire to respond to Likert scale and open-ended items about the BRLA, their use of LSAs and their teaching and assessment of RE. The questionnaire allowed the religious educators to provide quantitative as well as supporting qualitative data. This practice provides opportunities in research to readily collect, collate and analyse dichotomous, non-dichotomous and polygamous data using statistical procedures (Babbie, 2008).

4.4.1.1.1 The respondents. Table 4.3 is a summary of the demographic composition of the religious educators involved in Phase One. The table identifies most religious educators as having taught in Catholic schools for more than six years. Most religious educators were employed in schools within the Archdiocese of Perth. Half the number of religious educators were employed in large Catholic schools with student populations of more than 500 students in total.

The 238 religious educators comprised three categories. These are 150 classroom teachers of RE responsible for students in Years Three (n = 55), Five (n = 40) and Nine (n =

55); 57 school leaders responsible for leading RE in Catholic primary (n = 37) and secondary (n = 20) schools; and 31 principals of Catholic primary (n = 26) and secondary (n = 5) schools. The school leaders of RE in Catholic primary schools are called Assistant Principals of Religious Education (APRE), and the school leaders of RE in Catholic secondary schools are called Heads of Department (Religious Education) or Religious Education Coordinators (REC).

Table 4.3

Demographic Summary of the Respondents in Phase One

Demographic Category	Number of Respondents	%
Females	158	66.4
Males	80	33.6
Largest age grouping is between 45 to 54 (male 41%, female 30%)	81	34.0
Largest cohort from the Archdiocese of Perth	188	79.0
Teaching experience was six years or more	202	84.9
Teaching experience in a Catholic school, was six years or more	193	81.1
Educational specialisation in Religious Education	115	48.3
Teaching RE in a Catholic School, was six years or more	181	76.1
Taught RE outside of WA	35	14.7
Common educational qualification –Bachelor of Education	117	49.2
Common educational institute attended by teachers of RE (The University of Notre Dame Australia)	96	40.3
Years of involvement with the BRLA (5 to 8 years)	117	49.2
School size with more than a 500 student, population	123	51.7

Note. N = 238 respondents

4.4.1.1.2 Data gathering instrument: online, semi-structured questionnaire. The online questionnaire in this study was designed to collect baseline data from the religious

educators about their perceptions of the BRLA. The questionnaire was made available online to the religious educators by Qualtrics: Online Survey Software and Insight Platform (Qualtrics Online Solutions, 2013). The religious educators required approximately 20 minutes to complete the questionnaire within a period of more than one month (August to September 2013).

A total of 90 items were used to collect response data from the religious educators (Appendices I and J). The questionnaire comprised four items informing and requesting religious educators to consent to participate; 16 items requesting demographic information; and five open-ended questions requesting religious educators to comment on statements about the BRLA, the teaching experience of RE and the use of LSAs. There were also 65 structured items, mainly Likert scale items, whereby the religious educators were asked to respond to "stimulus statements (sometimes called a stem) and a set of standard options" (Wilson, 2005, p. 78) about aspects of the BRLA, the use of LSAs and RE. The set of standard options used mainly a five-point scale as well as a seven-point scale for two items. One other structured item required the religious educators to rate the effectiveness of the BRLA on a scale with score points from zero to one hundred. The zero rating on the scale was considered as the least possible score of effectiveness and one hundred as the highest possible score of effectiveness.

The Likert scale items were used to "measure the strength" (Foddy, 1993, p. 153) of the religious educators' attributes or characteristics that potentially led to their perceptions of the BRLA. The five-point scale used for each Likert scale item generally ranged from ordered categories of strongly disagree (SD = 1), disagree (D = 2), neither agree nor disagree (N = 3), agree (A = 4) to strongly agree (SA = 5). For the two items that used a seven-point scale, the ordered categories were very dissatisfied (1), dissatisfied (2), somewhat dissatisfied (3), neutral (4), somewhat satisfied (5), satisfied (6), and very satisfied (7).

Two features were added to the design of the Likert scale items. Firstly, religious educators were given the opportunity to choose to agree or disagree or to select neutral. The decision to include neutral was made to limit the probability of respondents being forced to choose to agree or disagree to statements, when in reality the respondents may not have settled on a fixed position (O'Leary, 2010). The researcher recognises there is disagreement from researchers about the number of options available on Likert scale items and the use of neutral ratings that exist (Revilla, Saris, & Krosonick, 2014). Secondly, several Likert scale items were repeated using positive and negative phraseology to represent reversed thresholds (Foddy, 1993; Wilson, 2005). This feature was adopted to establish consistency in the

religious educators' responses. Thirdly, regardless of the features and considerations used to measure the religious educators' responses using questionnaire items, the researcher acknowledges that the religious educators may have had "radically different ideas" (Wilson, 2005, p. 79) to how they responded to the items. Also, the religious educators may have interpreted the stem of the stimulus statements differently and perceived the categorised ratings on the Likert scales items differently to what was displayed and intended.

The open-ended questions within the online questionnaire were designed to collect qualitative information to assist the researcher to clarify and build upon the quantitative response data (Cohen et al., 2005; Miles & Huberman 1994; O'Leary, 2010). For three of the open-ended questions, the religious educators were asked to share their experiences of the BRLA (Question 12), teaching RE (Question 33) and using LSAs (Question 37). The final two open-ended questions asked religious educators to comment on what influence they believed the BRLA has had in RE (Question 81), and to comment about any aspect of the BRLA that they felt significant to their needs (Question 83). The combination of Likert scale and open-ended items in the questionnaire gave the religious educators the opportunity to respond to statements and add remarks, qualifications and explanations in support of their ranked responses.

4.4.1.2 Phase Two. In the second phase of the study, qualitative response data were collected from 43 religious educators from March to July 2014. The data were generated from 21 semi-structured individual and group interviews. The purpose of Phase Two was to probe significant findings from the first phase by exploring in greater depth the properties and potential influence (Gorgi & Gorgi, 2008) of the BRLA as a LSA used in RE, as perceived by the religious educators. The structure of the interview questions was based on findings that emerged from the analysis of the response data from Phase One.

4.4.1.2.1 The participants. The 43 religious educators involved in Phase Two represent a sub-set of the sample size of 238 religious educators involved in Phase One. The 43 religious educators elected to participate in the interview process when asked at the end of the online questionnaire. The 43 religious educators included 21 teachers of RE [Year Three (n = 5), Year Five (n = 5) and Year Nine (n = 11)] and 22 school leaders of RE [APREs (n = 8), RECs (n = 6) and principals of primary schools (n = 8)]. No principal from Catholic secondary schools volunteered. The principals who were interviewed led primary schools in the Archdiocese of Perth. The fact that no principal from a Catholic secondary school

contributed to Phase Two is a recognised and identified as a limitation. This limitation with other identified limitations are addressed in Chapter One.

A broad representation of the different religious educators working in Catholic schools in WA is evident in Phase Two. For example, the teacher and school leader groups were employed in diverse geographic and demographic Catholic schools within the Archdiocese of Perth and within the dioceses of Broome and Geraldton. No religious educators from the Bunbury Diocese are represented. Again, this is an acknowledged limitation that is addressed in Chapter One. Also, in terms of the religious educators' gender the following is known. The 21 teachers of RE comprise:

- five female Year Three teachers;
- three female and two male Year Five teachers; and
- six female and seven male Year Nine teachers.

The 22 school leaders of RE comprise:

- five female and three male school leaders of primary schools;
- four female and two male school leaders of secondary schools; and
- three female and five male principals.

Furthermore, the 43 religious educators were aged between 21 and 70.

4.4.1.2.2 Data gathering instrument: semi-structured interviews. The interview process involved the following considerations. Firstly, the number of religious educators involved determined the composition of the interview process. Secondly, at least one hour per interview was allocated and used. Thirdly, religious educators were asked to respond to nine stimulus questions and follow-up contributing questions drawn from the analysis of findings identified in the response data to the online questionnaire (Appendices K and L). The interview questions were designed to give the religious educators an opportunity to express individual meanings of their perceptions (Gall et al., 2007) of the BRLA. The religious educators were encouraged to speak freely, discussing and elaborating on their experiences (Cohen et al., 2005) of the BRLA and related contexts including the teaching of RE and the use of LSAs. Given the nature of the semi-structured interviews, there were also opportunities for the religious educators to explore ideas beyond the stimulus questions. For example, the religious educators were asked impromptu questions such as "What do you mean by that comment?" and "Could you please explain that point further?". Finally, audio recordings and transcriptions of the interviews were made with the informed consent of

religious educators. The religious educators were instructed (Miles et al., 2014) that it was possible for them to review, comment upon and alter what they said in the interviews.

4.4.1.2.3 Composition. The composition of the interviews was dependent upon the number of religious educators who volunteered to take part in the interviews and the role of teaching responsibility of those religious educators. Given the power differential that exists between classroom teachers and principals (Kvale & Brinkmann, 2009; Seidman, 2013), the researcher decided to organise separate and individual interviews with the principals who volunteered to participate in the interview process. This decision was made to allow teachers to express themselves freely without possibly feeling intimidated by principals. Eight individual interviews involving principals were conducted first throughout March 2014.

The group interviews were conducted between April and July 2014 (Appendix M). These interviews were conducted either at school locations or in buildings that were near school locations. Where two or more religious educators from one school agreed to be interviewed, a school group interview was conducted. Group interviews with teachers responsible for students in similar Year levels were also conducted.

In the first round of group interviews, six school group interviews involving several teachers and school leaders of RE were organised. These interviews were followed by three primary school group interviews and three secondary school group interviews. A further three group interviews were arranged involving individual teachers and school leaders from different schools and responsible for different Year levels. Of the group interviews involving teachers of Year Nine students, one was conducted via video conferencing because the teachers worked in regional Catholic schools. Finally, two group interviews were held with school leaders. One involved five APREs from five different Catholic primary schools and the other involved three RECs from three different secondary schools. The full composition of the interview process is available in Appendix L.

4.4.1.2.4 The interview questions. The semi-structured, individual and group interviews used a framework (Seidman, 2013) focused on nine stimulus questions. Appendices K and L list the nine stimulus questions and follow-up contributing questions used during the eight individual and thirteen group interviews. Two interviewers used probing questions to encourage participants to elaborate and clarify what they had said (O'Leary, 2010). The participants were asked to respond to questions about their experiences, thoughts, feelings and opinions (Kvale & Brinkmann, 2009; Seidman, 2013) of the BRLA

within the broader contexts of RE and the use of LSAs. The religious educators were provided with sufficient time and space to discuss and exchange ideas freely with the interviewers and each other in the group. Through the dialogue, participants recalled their stories; in many cases they used literary forms such as similes, metaphors, analogies and images.

4.4.2   Methods of data analysis. Given that numeric, written and transcribed data were collected from the religious educators during the two phases of the study, a mixed methods approach to data analysis was applied at the end of each phase. The response data from Phase One were separately collated and analysed according to the type of data set. Data from Phase One were analysed prior to starting Phase Two, informing the design and composition of that phase. Quantitative techniques such as descriptive processing and analysis were conducted on the numeric data (Babbie, 2008; Cohen et al., 2005; Gravetter & Wallnau, 2007) received from the 238 religious educators in Phase One. The written data from the 238 religious educators in Phase One and the transcribed data from the 43 religious educators in Phase Two were managed and analysed using Miles and Huberman's (1994) systematic methods of qualitative analysis. These processes of data analysis were followed by the cross-referencing of analysed data from both phases (Teddie & Tashakkori, 2009). As part of the cross-referencing investigation, the quantitative and qualitative data were combined and integrated. The aim was to identify similarities and differences in the findings from both data sets. The comparison of data sets led to a discovery of common response patterns or themes.

Table 4.4 is a summary of the procedures for collating and analysing the quantitative and qualitative response data from both phases. A systematic approach was used to investigate each data set and specific aspects of the data sets. A feedback loop from the end of Phase Two back to Phase One identifies the final cross-referencing process.

Table 4.4

The Procedures for Collating and Analysing Response Data

Phase	Implementation
Phase One *Sort*	1. Sort online questionnaire items and response data from the items according to one or more specific research questions addressed. Use Microsoft Word and Excel.
	2. Systematically code and enter numeric data from the structured online questionnaire items into SPSS (e.g. Likert scale items).
Investigate	3. Display descriptive statistics: • Frequency counts; • Mean; • Standard deviation; and • Testing for statistical probabilities using non-parametric testing: - Mann-Whitney U Test to measure difference according to gender; and - Kruskal-Wallis Test to measure differences according to age and employment role of responsibility.
	4. Code and enter numeric data into Rasch program, *RUMM2030*. Consider: • Summary statistics; • Threshold probabilities; and • Item fit and person fit.
	5. Systematically colour code and categorise response data from the open-ended questions. Conduct frequency counts of the responses.
	6. Interrogate data for common response patterns.
Cross-reference	7. Cross-reference response data from structured items and open-ended questions. Interrogate data for common response patterns.
Phase Two	8. Transcribe interview response data within hours of an interview. Use the Dragon NaturallySpeaking voice activated program to assist.
Sort	9. Systematically sort, colour code and categorise the transcribed response data from the interviews.
Investigate	10. Cross-reference transcribed response data from each interview. Identify response patterns. Interrogate data for common response patterns.
Cross-reference	11. Cross-reference written response data from the online questionnaire with the transcribed response data from the interviews.
	12. Interrogate data to identify research themes.

4.4.2.1 Analysis of Phase One. The response data gathered from the first phase underwent several stages of analysis. Microsoft Word and Excel (Microsoft, 2011) programs were used to manage the data. Firstly, the quantitative data were separated from the qualitative response data. The response data to the structured questions, such as the Likert scale items, were grouped according to the similarity of the questions and the SRQs the data addressed. The written data from the open-ended questions went through a similar initial process. Various ordered matrices were created whereby written data were sorted into rows and columns, reflecting items and participants' responses to those items. Later in the analysis process, the qualitative and quantitative data sets and aspects of the data sets were cross-referenced to identify common response patterns from individual and collective participants (Creswell, 2009; O'Leary, 2010).

4.4.2.1.1 The analysis of quantitative data. The process of analysis of the numeric data were carried out in three stages. The stages involved preparing the data, entering the data into various software programs and calculating descriptive statistics. The original data from the online questionnaire were provided by Qualtrics in Microsoft Excel spreadsheets. The systematic coding and entering of numeric data into software programs was used to generate and display descriptive statistics (Gall et al., 2007; O'Leary, 2010). Firstly, the data were reconfigured and coded according to the constructed question types. As part of the coding exercise, the five- and seven-point Likert scale items used the ordered categories or score points as part of the analysis rather than words. Thresholds were established using the score points. For example, in the five-point Likert scale, one threshold was established between the categories of "agree" and "strongly agree". Another threshold established "strongly agree" as the highest possible score point on the scale continuum.

Pivot tables in Microsoft Excel were then generated to conduct investigations of test characteristics using descriptive statistics (Gravetter & Wallnau, 2007). The mean was used as a measure of central tendency to identify the central value of observable variables. The standard deviation was used as a measure of variance to calculate the range of observable variables. Other statistics such as frequency distributions and Cronbach's alpha as a measure of reliability were also used. Distractor analysis was used in further investigations involving item characteristics and function (Andrich et al., 2011; Rasch, 1977).

Using the Statistical Package for the Social Sciences (SPSS) (Allen & Bennett, 2008) software program, the numeric data were subjected to non-parametric testing. The tests used were the Kruskal-Wallis 1-way ANOVA Test for gender and employment type and the

Mann-Whitney U Test for age (Gravetter & Wallnau, 2007; Liu, 2014). When analysis of the response data to the scale items was conducted using non-parametric testing, the rejection of a null hypothesis of less than .05 was identified several times for gender, age and the religious educators' employment role of responsibility. These results indicate differences in how religious educators responded to questions based on those variables. Other demographic variables did not cause the same results. For example, the school location and size in terms of student numbers.

4.4.2.1.2 The analysis of qualitative data. The religious educators' written responses to the five open-ended questions underwent two stages of analysis. Firstly, systematic, manual and computer assisted sorting, note-taking, coding and categorising (Creswell, 2009; Miles & Huberman, 1994) was carried out on the written responses to each question. The religious educators' responses were mapped against the SRQs. Microsoft Word and Excel programs were used to manage the data. Secondly, data were cross-referenced to identify similarities and differences in the religious educators' responses to each of the questions. Data tables were developed from categories created from the sorting and coding of data. These tables assisted in the process of content analysis. Thirdly, the written responses were cross-referenced with responses to corresponding structured items. The cross-referencing of data sets was carried out to establish consistency in the religious educators' responses.

Much of the work carried out by the researcher in the analysis of the qualitative data followed the arguments presented by Miles et al. (2014) of being "shamelessly eclectic" (p. 9) by borrowing techniques from various scholars. For example, the coding activity draws on Glaser and Strauss's (1967, p. 102) description of the qualitative coding approach that involves three dominant stages. The first stage is deductive, where data are converted to frequency counts. The second stage is inductive, where data are coded first to generate an understanding of the data. The third stage involves the combination of both stages. Full details of the qualitative analysis are described within the processes of analysis carried out in Phase Two.

4.4.2.2 Analysis of Phase Two. Figure 4.3 outlines the process used in this study to analyse the qualitative data from Phase Two and later compare and merge the processed data from Phase One. The response data in Phase Two underwent several stages of analysis with much of the work drawn from Miles et al. (2014). In the first stage of analysis, two research assistants transcribed the interviews within hours of each process (Siedman, 2013). The

recordings of the interviews were firstly transcribed using Dragon NaturallySpeaking 13 Standard (Nuance Communication Inc., 2013). Several reviews of each transcribed interview were conducted to ensure that words were spelt correctly, and that words and phrases were transcribed correctly from the recordings.
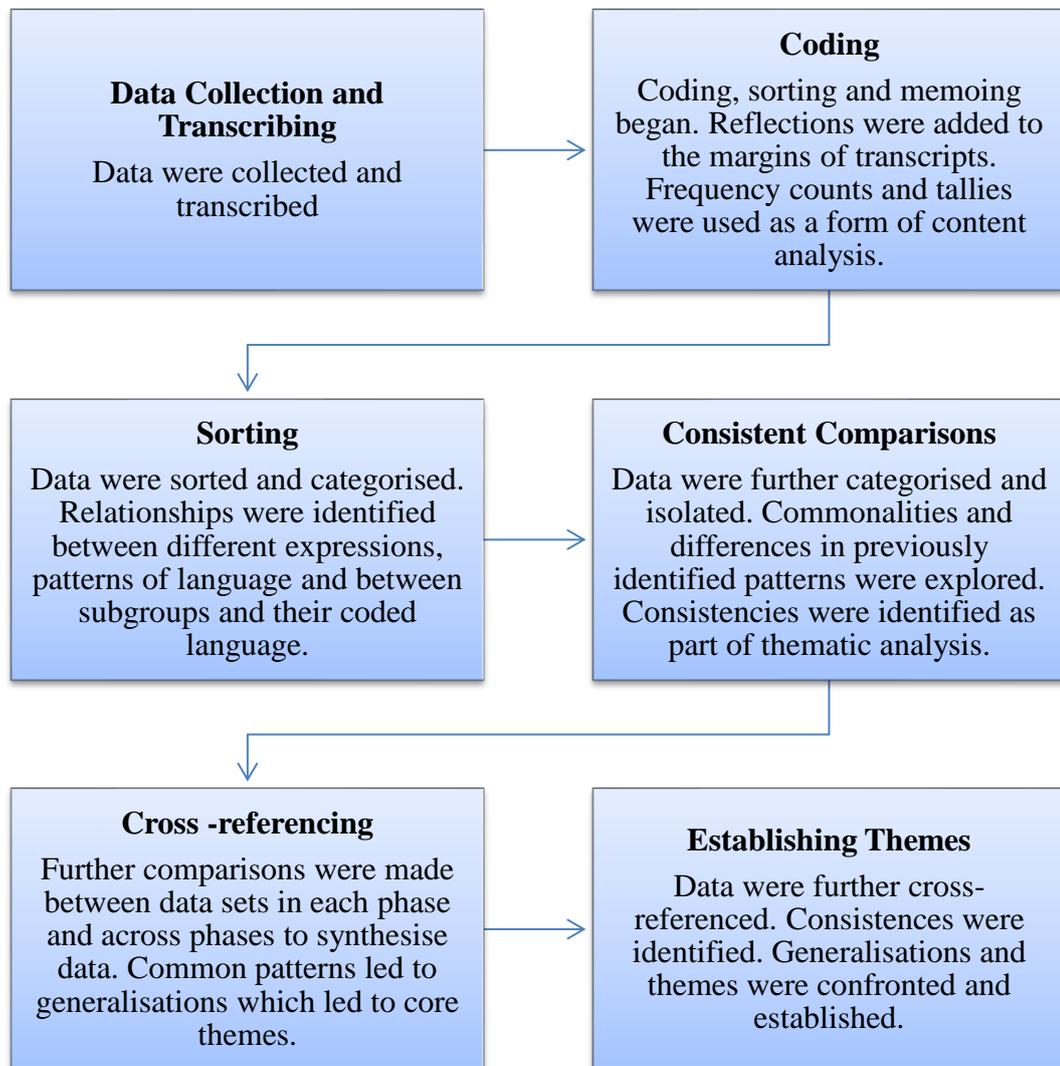
Data Collection and Transcribing

Data were collected and transcribed

Coding

Coding, sorting and memoing began. Reflections were added to the margins of transcripts. Frequency counts and tallies were used as a form of content analysis.

Sorting

Data were sorted and categorised. Relationships were identified between different expressions, patterns of language and between subgroups and their coded language.

Consistent Comparisons

Data were further categorised and isolated. Commonalities and differences in previously identified patterns were explored. Consistencies were identified as part of thematic analysis.

Cross -referencing

Further comparisons were made between data sets in each phase and across phases to synthesise data. Common patterns led to generalisations which led to core themes.

Establishing Themes

Data were further cross-referenced. Consistences were identified. Generalisations and themes were confronted and established.

Figure 4.3.   Analytic methods of qualitative research for this study (adapted from Miles et al., 2014, pp. 69–104)

Secondly, the two interviewers in this study provided written reports detailing their perceptions of each of the interviews in which they were involved. Thirdly, for ethical reasons, final non-identifiable transcriptions and voice recordings of each interview (Miles & Huberman, 1994; O'Leary, 2010) were provided to the researcher by research assistants.

Each of the 43 religious educators were given coded names to protect their identity. It was only at this point that the researcher received information about the religious educators' employment role of responsibility and about the configuration of the interviews. Fourthly, the transcribed data from each interview were sorted, coded and categorised and sorted again. Fifthly, the categorised sets of transcriptions were cross-referenced to establish similarities and differences in the data between the religious educators as a whole and between teachers, school leaders and principals. The sorting activities led to generalisations and the identification of common themes. Transcripts from the interviews provided opportunities for the researcher to explore with greater complexity a richer understanding of how religious educators perceived different aspects of the BRLA. The transcriptions also provided insights into the participants' perceptions of the BRLA and how these perceptions may have influenced their teaching, learning and assessment practices in RE. The stages of analysis following the produced interview transcripts is further explained next.

4.4.2.2.1 Coding. During the coding process in this study, interview transcripts and recordings were reviewed several times. Copies of transcripts created and phrases and words within the transcripts were highlighted and colour coded. Data were entered into Microsoft Word and Excel to further assist with the coding process. The process of naming and labelling particular expressions (single words and phrases), categories of expressions and associated properties of those expressions was part of coding (Saldaña, 2013). This process was used in Phase One and Two with the written and transcribed response data provided by the religious educators. Three types of coding occurred. Firstly, open coding (Glaser and Strauss (1967, p. 102) was used, where each line, sentence and paragraph was read in search of answering a repeated question, "What is this about?" (Miles & Huberman, 1994). The labels used referred to expressions such as "the BRLA", "religious education", "LSA", "at my school" and so on. These are the nouns and verbs of the conceptual world (Charon, 2010). Tables were drawn to synthesise the phrases. The arrangement, identification and rearrangement of phrases occurred. Secondly, axial coding (Strauss & Corbin, 1990) was used, whereby codes were created to identify relationships in the data sets and across data sets. Thirdly, selective coding was used, whereby categories were formed and selected as core in a string of categories that created a central narrative (Miles & Huberman, 1994; Saldaña, 2013).

4.4.2.2.2 Constant comparisons. The coded data were categorised into common groupings (Saldaña, 2013) using memoing. The first process of categorisation was carried out repeatedly in order to triangulate the data. System cards and memos were used as a way of recording ideas (Maykut & Morehouse, 1994). Furthermore, various display formats were created in the coding process to identify the groupings. For example, networks showing series of notes with links between them; multi-forms showing short blocks of text, quotations, phrases, rating, abbreviations, symbolic figures, labelling lines and arrows; and context charts showing mapping in graphic forms (Miles & Huberman, 1994). The display formats helped identify properties within the data. These properties gave rise to concepts about the categories established. For example, Year Three teachers spoke about the difficulty in the language used in the BRLA.

As coded categories emerged, the researcher linked them together into common response patterns. Questions such as "when", "why" and "under what conditions do these themes occur" (Glaser & Strauss, 1967, pp. 101–116) were raised by the researcher about the processed data. As a follow-up to the process, preliminary tables were drafted and reviewed. These tables underwent reassessment and refinement. The initial process of categorisation enabled data reduction to occur. In turn, the process enabled the researcher to make decisions regarding further analysis that resulted in preliminary and, later, final conclusions (Miles & Huberman, 1994). The established categories were compared for meanings and then refined and explored for their relationship. Lastly, the categories were integrated when understandings about the religious educators' perceptions of the BRLA were identified.

Memos were used throughout the stages of analysis (Miles & Huberman, 1994). Firstly, as recorded reflections about the data. Secondly, as notes about aspects of the developed properties, categories and associated relationships identified through coding and the constant comparison of categories created.

4.4.2.3 Cross-referencing of data from both phases. The processed data in each phase and between phases were cross-referenced several times through sorting, coding and categorising techniques. The aim was to gain plausibility in the data by clustering the data and building logical chains of evidence (Bryman, 2004). This chain of evidence reduced the data and led to the research findings that address the three SRQs. Identified at the end of the chain were the research themes. Core themes emerged from the research findings through a process of thematic analysis (Rubin & Rubin, 2012; Saldaña, 2013).

During the cross-referencing stage and through a process of triangulation, data were merged and compared (Bryman, 2004; Creswell, 2009). Data sets and aspects of data sets from each phase of the study were cross-referenced to identify common response patterns or recurrent behaviours from individual and collective participants. The analysis involved searching and identifying themes and then interpreting those themes. A refinement of the themes continued with further sorting of relationships and patterns across categories until a saturation point (Glaser & Strauss, 1967, p. 62; Miles et al., 2014, p. 286) occurred where no new knowledge was able to be gained. During this time generalisations and conclusions were drawn and confirmed. The data were reduced to a point where the GRQ was addressed and the stages of analysis were complete.

Throughout the data analysis, the researcher aimed to ensure three key principles of research analysis. The aim was to achieve trustworthiness of the collected data. Firstly, quantitative research methods were used to ensure credibility and transferability of the research findings (Babbie, 2008). Secondly, qualitative research methods were used to ensure generalisability of the research findings (Miles et al., 2014). Thirdly, to ensure dependability of the research findings, a focused investigation based on SRQs was conducted and the limitations from the investigation were acknowledged. These principles helped to successfully address the research problem. The outcome of the study supports the argument for integrating the collection and analysis of data used in mixed methods research (Bryman, 2004; Teddlie & Tashakkori, 2009). Discussion about the use of pilot studies is required to further support this claim.

4.4.3   Pilot studies. Two pilot studies were conducted. The pilot studies were aligned to the research design represented in the theoretical framework that focuses on the research problem. The purpose of the pilot studies was to assist in the development of effective survey instruments for generating valid and reliable data for the study (Cohen et al., 2005; Wilson, 2005). The pilot studies provided an opportunity to sample and review proposed online questionnaire items and interview questions. The questions for both phases of the study were evaluated and modified before their final release. The pilot studies also helped determine the appropriate time required to complete the online questionnaire, the appropriate time to conduct interviews and the appropriate number of teachers for each group interview.

4.4.3.1 Timing. The timing of the pilot studies is as follows. The first pilot study trialled the online questionnaire items from March to July 2013. The second pilot study trialled the interview questions from October to February 2014. Besides attempting to improve the question types, the second pilot study also helped the interviewers discover how best to approach the questions with the religious educators. Both pilot studies preceded the two phases of the study.

4.4.3.2 Participants. Twenty religious educators took part in the pilot studies. The group of religious educators were employed as casual relief teachers in Catholic schools. They were involved in the BRLA marking process. These religious educators, having had professional teaching experience in RE, were aware of the BRLA and its use in RE.

4.4.3.3 Design. The conceptual and theoretical frameworks of the study informed the sampling methodology of the pilot studies. All statements and questions were based on the review of RE literature, the use of LSAs and the role of the religious educator. Furthermore, literature about the construction of questions for questionnaires and interviews was used (Foddy, 1993). From the pilot studies, the religious educators' perceptions of the BRLA were identified through responses to firstly, a set of constructed statements of standard options from which they could choose, and secondly, to open-ended questions.

4.4.3.4 Rasch Analysis. Rasch modelling (Andrich, 1988; Rasch, 1960) was used for quality assurance regarding the construction of the Likert scale items used in the online questionnaire. That is, Rasch analysis helped to assess the validity and closeness of fit between the online questions and the participants' responses to those questions (Wu, Tam, & Jen, 2016). The response data from the Likert scale items in the online questionnaire were recoded and entered into the *RUMM2030* software program (Andrich et al., 2011). Partial completion of the online questionnaire was not included in program. The Rasch software was used to estimate the item (difficulty) and person (ability or in this case, choice) parameters on a common scale. *RUMM2030* provided summary statistics with the residual correlations; the display of threshold information with items entered as polygamous with five and seven ordered categorises (e.g. displays of threshold probability curves and person-item threshold distribution); individual item fit and individual person fit (e.g. displays of category probability curves to show item function and compare strength of item function, item characteristic curves); residual correlations; and the Guttman principle components. The

findings from the investigation suggest that the data fitted the model. Table 4.5 is a summary of the test of fit statistics based from *RUMM2030*.

Table 4.5

Summary of the Test of Fit Statistics from RUMM2030 (n = 232)

	Pilot Study	Actual Study
Total item -Chi Square	314.9820	1,400.3005
Degrees of Freedom	240	180
Chi Square Probability	0.000822	0.000000
Person separation index with and without extremes	0.87289	0.89760
Coefficient Alpha with and without extremes	0.86791	0.90043

Item Fit				
	Item Location	Fit Residual	Item Location	Fit Residual
Mean	0.0000	0.6605	0.0000	0.1167
Standard Deviation	1.6980	0.6019	0.7687	2.2874
Skewness	1.2267	1.4120	-0.2623	1.4341
Kurtosis		1.3712	2.6109	1.6677

Persons Fit				
	Person Location	Fit Residual	Person Location	Fit Residual
Mean	1.5161	0.7291	0.0775	-0.3218
Standard Deviation	0.5100	2.0083	0.4660	2.3658
Skewness	0.6609	0.4815	0.0320	0.0863
Kurtosis	-0.6609	-0.4337	-0.1125	0.0184

The table shows the statistics from the pilot study compared to the statistics from the actual study. The person separation index for the pilot study (the Rasch equivalent to Cronbach's alpha) is 0.86791 compared to 0.90043 for the actual study. These results suggest a high degree of reliability for both studies in terms of individual item fit. That is, the analysis

from the pilot study suggests there was no need to substantively change or remove any of the Likert scale items in preparation for the actual study because the items seem to have appropriately targeted the religious educators involved. Appendix P further highlights the reliability of the questionnaire items in the actual study. For example, the first figure in Appendix P displays the person-item threshold distribution and suggests according to the concentration of persons in the middle of the output graph that the items appropriately targeted the represented sample of religious educators involved in the actual study.

4.5 Ethical Considerations

Four ethical considerations are addressed in this study. The strategies proposed to address the ethical considerations were approved by the Human Research Ethics Committee (HREC) of The University of Notre Dame Australia on Thursday 10 May 2012 (Appendix D). The first ethical consideration is based on the intellectual property of the study. The second is the permission given to conduct the study. The third addresses a potential conflict of interest that exists between the researcher and the participants. The fourth involves gaining informed consent from participants. These considerations are considered necessary preventative steps to ensure the integrity of the study (Lincoln & Guba, 1985).

4.5.1 Intellectual property of the study.
The first ethical consideration deals with the intellectual property of the study. The University of Notre Dame Australia was identified on all documentation sent to stakeholders of the study as the sponsor of the study and the owner of all the data. The documentation described the study as a university program and the researcher as a student of the university.

4.5.2 Permission to conduct the study.
After HREC approval and in a letter to the Director of Catholic Education of Western Australia (Appendix E), the researcher sought permission to survey religious educators working within the Catholic education system in WA. The Director at the time, Mr Ron Dullard, formally gave written permission for the study on Friday 1 June 2012. Approval for the research was then sought by the school principals who directly employ religious educators. Initially, letters were sent to the Primary and Secondary Principal Associations of Western Australia requesting the support of their members (Appendix F), followed by letters to each Catholic school principal in WA requesting their support to promote the study and their permission to contact their teaching staff (Appendix G). The letters to the Director, school principals and relevant associations

outlined the features of the study and the ethical considerations addressed in the initial proposal for the study.

4.5.3   Potential conflict of interest. The second ethical consideration addresses a potential conflict of interest between the researcher and the participants of the study. The researcher is a student at The University of Notre Dame Australia but also an employee of the CEOWA. She is a consultant who supports religious educators in the implementation of the RE curriculum. The researcher has always been directly responsible for the development, implementation and analysis of the BRLA as part of the RE curriculum. As part of her work she is involved with teachers and school leaders of RE. This is a potential conflict of interest. To overcome this potential conflict, research assistants were employed and trained by the researcher to collect and manage all response data from the study. Two research assistants were employed to contact, engage and coordinate the completion of the online questionnaire with principals, school leaders of RE and teachers of RE; to contact consenting participants for the semi-structured individual and group interviews; to conduct all interviews and transcribe data from the interviews; and provide only non-identifiable transcripts and audio recordings of the interviews to the researcher. These measures complied with the requirements of the HREC (Appendix D) and the anonymity of participants was guaranteed in the completion of the online questionnaire and conducted interviews.

Although the researcher was never directly involved with the participants at any stage during the study, the researcher was very familiar with the area and topic of the study. This ensured the credibility of the research design and methods used to address the research problem (Lincoln & Guba, 1985). The researcher was responsible, for preparing items for the online questionnaire and follow-up questions for the interviews and for training the research assistants to carry out their work. All participants in the study were issued with a code derived from information of their birthdate. This code protected the anonymity of the participants from the researcher yet assisted the research assistants to identify and merge data from participants who were involved in the first and second phases of the study. In addition to these measures, the researcher signed a confidentiality agreement to ensure that all information from the study was kept private and confidential and not disclosed to any staff member at the CEOWA. Furthermore, the researcher implemented a peer review process to consult with the research assistants and research supervisor on matters related to the study (Johnson & Onwuegbuzie, 2004; Nagy Hesse-Biber, 2010).

Given the potential conflict of interest in this study, the scope of the study does not reference or discuss student performance data from the BRLA. Such a discussion may have caused an additional conflict of interest because participants may have felt intimidated by the possible association between their involvement preparing students for the administration of the BRLA and the students' results.

4.5.4   Informed consent. Another ethical consideration addressed the provisions for informed consent by all participants. The religious educators were invited to voluntarily participate in the study. The teachers and school leaders of RE were sent a letter detailing the aims of the research and the methods in which data were to be gathered, processed and reported (Babbie, 2008; Creswell, 2009; Punch, 2009). This letter was similar to the letter sent to school principals (e.g. Appendix G). Informed consent from the religious educators was sought prior to them starting the online questionnaire and the interviews. The informed consent was made available electronically when RE teachers began the online questionnaire and on paper when the religious educators participated in the interviews (e.g. Appendix H). The religious educators were made aware, through the informed consent, of their option to remove themselves from the study at any time. The invitation to religious educators to participate in the study, in particular, the individual and group interviews, is addressed as a limitation and acknowledged in Chapter One and further acknowledged in the recommendations from the study in Chapter Twelve.

4.6   Chapter Summary

The design plan for the research was presented in this chapter. Firstly, the theoretical framework underpinning the study was outlined. The framework identifies a pragmatic approach to research, which was used to guide the development of the research methodology aimed at addressing the research problem through the GRQ and the three SRQs. The plan describes the methods for investigating the religious educators' perceptions of various aspects of the BRLA. These aspects include the perceived purpose and role of the BRLA, response to the administration and implementation of the BRLA, and the influence that perceptions have on teaching and assessment practices. An adaptation of a sequential explanatory strategy of mixed methods research was utilised to collect and analyse quantitative and qualitative data over two phases.

Multiple processes of collation and analysis of response data in both phases and across the phases led to the research findings and themes. The presentation of the key

findings identified within the next six chapters is according to three considerations. Each of the considerations have associated implications for the structure of the chapters.

Firstly, the key findings are presented according to the phase of the study from which they emerged. Chapters Five, Seven and Nine present the key findings in Phase One. The key findings identified in these chapters are based on the survey data from 238 teachers and school leaders of RE who represent a sample size of a target population of 600 religious educators working in Catholic education in WA. Chapters Six, Eight and Ten present key findings from Phase Two. The key findings identified in these chapters are based on the 43 of the 238 teachers and school leaders of RE who volunteered to participate in the individual and group interviews. These religious educators are a sub-group of the sample size of the targeted population. The key findings to emerge from the groups' individual and collective responses build on the initial key findings in Phase One by adding further supporting evidence that provides depth and clarification to those findings.

Secondly, the key findings are presented according to the three SRQs they address. Chapters Five and Six identify key findings that address SRQ 1 regarding the perceived purpose and role of the BRLA. Chapters Seven and Eight identify key findings that address SRQ 2. This second question relates to responses about the administration and implementation of the BRLA. Chapters Nine and Ten identify key findings that address SRQ 3. This third question targets the possible influence that underpins the religious educators' perceptions of the BRLA on their teaching and assessment practices in RE.

Thirdly, the key findings are a result of quantitative and qualitative survey data analysed separately and later combined. The study used the qualitative data and the analysis of that data to support and validate the quantitative data and analysis of that data. Neither type of data is considered more important than the other. Each chapter begins by identifying the key findings. The evidence supporting the key findings is presented according to the combined substantial quantitative and qualitative survey data from the religious educators. This convergence of data is proven to enhance the credibility of the research findings (Creswell et al., 2003). As will be demonstrated in the next six chapters, the goal was always to objectively integrate data (Bryman, 2006) to find consistencies and inconsistencies within the data provided by the religious educators. These efforts of triangulation led to the research themes discussed in Chapter Eleven.