The introduction of Montessori teaching and learning practices in an early childhood classroom in a remote Indigenous school

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CHAPTER FOUR

DESIGN OF THE RESEARCH

4.1 INTRODUCTION

The review of literature in Chapter Three drew attention to three topics. These topics were: current policies and practices in Early Childhood education in Australia; current policies and practices in Aboriginal education; and principles and practices of Montessori pedagogy. One general question and four specific questions evolved from this review and provided the focus for the conduct of the study. The general research question for the study is: What is the effect of Montessori pedagogy within a remote Aboriginal Early Childhood program? The four specific research questions to be addressed are:

1. In what ways do Aboriginal students respond to Montessori pedagogy within a remote Early Childhood program?
2. In what ways has Montessori pedagogy impacted on student behaviour within a remote Aboriginal Early Childhood program?
3. In what ways has Montessori pedagogy impacted on language learning and development within a remote Aboriginal Early Childhood program?
4. In what ways has Montessori pedagogy engaged community members to interact within a remote Aboriginal Early Childhood program?

Chapter Four presents an overview of the research design underscoring this study of Montessori pedagogy in a remote Aboriginal Early Childhood program. In the light of the above research questions, and considering the purpose of the study, to observe and describe the effect of Montessori pedagogy in a remote Aboriginal Early Childhood program, it seemed appropriate to undertake qualitative research of a phenomenological nature. Table 4.1 provides an overview of the research design.
Table 4.1

Overview of the Research Design

| 4.2 Theoretical framework | • Epistemology  
|                          | • Qualitative research  
|                          | • Interpretivism  
|                          | • Phenomenology  
| 4.3 Methodology          | • Individual case study  
| 4.4 Data collection      | • Video recording and observational framework by the teacher-researcher  
|                          | • Journal writing by the teacher-researcher  
|                          | • Review of the ten observational frameworks by the critical friend (general and individual)  
|                          | • Review of the three one-on-one interviews with the informant  
| 4.5 Research participants| • Papulankutja Early Childhood Class  
| 4.6 Trustworthiness      | • Methods of data collection  
|                          | • Sources of participants  
|                          | • Case study database  
| 4.7 Data analysis        | • Content analysis  
| 4.8 Ethical considerations|  

4.2 THEORETICAL FRAMEWORK

The theoretical framework establishes the connection between the concrete features and the theoretical aspect of the research (Neuman, 2011). Crotty (1998) identified four components, which underpin a theoretical framework, these being: epistemology, theoretical framework, methodology and methods. The epistemological orientation of the theoretical framework is toward knowledge that emerges from a qualitative foundation, and an interpretivist, rather than positivist, approach to knowledge building. The theoretical perspective is the philosophical stance of the context informing the methodology. Methodology entails the plan, design or strategy for the methods of research. Finally, methods can be defined as the procedures and techniques by which the researcher collects and analyses data (Crotty, 1998). Figure 4.1 presents an overview of the theoretical framework for this study.
4.2.1 Epistemology

The epistemology underpinning the study into the effect of Montessori pedagogy in a remote Aboriginal Early Childhood program is that of qualitative research. Qualitative research is the “collection, analysis, and interpretation of comprehensive narrative and visual data in order to gain insights into a particular phenomenon or interest” (Gay, Mills & Airasian, 2006, p. 398). Qualitative research attempts to establish “how things are happening, rather than merely what is happening” (Stringer, 2007, p. 19). Qualitative research provides an insight into a particular group or environment (Bryman, 2008) and aims to discover the significance of a specific social context (Bogdan & Bilkin, 1992). This research into Montessori pedagogy occurs in the natural environment of the Ngaanyatjarra Lands School Network, Papulankutja Campus (Creswell, 2003).

There are various approaches to conducting qualitative research. The approach emphasised in this research into Montessori pedagogy in a remote Aboriginal Early Childhood program is that of interpretivism, which aims “to understand individual human action either in terms of their daily interactions and common-sense ideas or in the context of the wider culture” (O’Reilly, 2008, p. 57). Interpretivist research seeks to establish connections in the data through patterns and common features (Gay, Mills & Airasian, 2006). Specifically, the teacher-researcher sought to meaningfully understand the participants in their day-to-day life (Neuman, 2011). That is, consistent with an interpretivist approach, this study attempts to understand the lived experience of remote Aboriginal Early Childhood students in a Montessori teaching and learning environment.
4.2.2 Theoretical Perspective

Within interpretivism, various theoretical perspectives or lenses exist that highlight different components of human behaviour (Creswell, 2003). The approach used in this research into Montessori pedagogy in a remote Aboriginal Early Childhood program is that of phenomenology. Phenomenology is defined as “an approach that concentrates on the study of consciousness and the objects of direct experience” (Oxford University Press, 2016). Fraenkel and Wallen (2003) explained that phenomenologists “generally assume that there is some commonality to the perceptions that human beings have in how they interpret similar experiences, and phenomenologists seek to identify, understand, and describe these commonalities” (p. 437). By adopting a phenomenologist perspective, the teacher-researcher sought to describe the common “essential characteristics” (Stringer, 2007) of the Montessori pedagogy implemented in the remote Aboriginal Early Childhood program.

4.3 METHODOLOGY

4.3.1 Case Study

Within a case study research design, “a particular individual, program, or event is studied in depth for a defined period of time” (Leedy & Ormond, 2001, p. 149). Case study research aims to understand the specific individual, program or event to advise practice for comparable settings (Leedy & Ormond, 2001). Data collection methods in a case study can include observation, interviews and audio and video recording. The teacher-researcher selected a case study approach because she aimed to understand the effects of a specific phenomenon, Montessori pedagogy in a remote Aboriginal Early Childhood class (Baxter & Jack, 2008). In particular, the focus of this case study was to understand the lived reality of the participants (Leedy & Ormond, 2001). The participants in this study were children in a remote Aboriginal Early Childhood class educated within Montessori pedagogy.

4.3.2 Individual case study

There are various approaches to a case study. These approaches include: individual, intrinsic, collective and instrumental case study (Stake, 1994). Specifically, this research is based on an individual case study. Berg (2007) stated that an individual case study aims to “systematically gather enough information about a particular person, social setting or event, or group to permit the researcher to effectively
understand how the subject operates or functions” (p. 283). This particular research was an individual case study that intended to provide a “snapshot” (Rose, 1991) of a remote Aboriginal Early Childhood class. This study aimed to deliver a “detailed and objective study of one research entity at one point in time” (Berg, 2007, p. 293). The teacher-researcher sought to accurately capture daily activities of the participants in order to examine a specific phenomenon, Montessori pedagogy within a remote Aboriginal Early Childhood setting.

There are, however, various criticisms of an individual case study methodology. Two main criticisms include the issue of generalisability and the concern of subjectivity (Fong, 2008; Leedy & Ormond, 2001; Myers, 2000; Stringer, 2007). These criticisms will now be addressed.

4.3.2.1 Generalisability

Myers (2000) defined generalisability as “the degree to which the findings can be generalised from the study sample to the entire population” (p. 2). An individual case study can be unreliable due to a potentially small sample size, which makes it difficult to provide relevant research to a wider audience (Myers, 2000). The teacher-researcher acknowledged that the sample size was small. However, the number of students in this study is representative of Early Childhood classes in the Ngaanyatjarra Lands School Network. The Early Childhood class in this study is typical of other Early Childhood classes in remote Aboriginal communities in the central western desert of Australia.

4.3.2.2 Subjectivity

Subjectivity can be defined as “the ways that research is shaped by the particular perspective, interests and biography of the researcher” (Fong, 2008, p. 1). An individual case study can be influenced by the researcher’s personal bias and perception. Three methods were used to address the issue of subjectivity. These were: the use of the verbatim principle, bracketing and triangulation. The teacher-researcher firstly applied the “verbatim principle” (Stringer, 2007) where she recorded participants’ responses, behaviours, language development and community interactions. The verbatim principle uses expressions taken directly from the
participants (Stringer, 2007). In this respect, the teacher-researcher recorded
statements word-for-word from the teacher-researcher, critical friend and informant.

The second method the teacher-researcher used to address the concern of
subjectivity was bracketing. Bracketing is a “method used in qualitative research to
mitigate the potentially deleterious effects of preconceptions that may taint the
research process” (Tufford, 2010, p. 81). Every human being has a set of values
through influences such as culture, personality and socioeconomic status (Burkitt,
1997). Furthermore, Stringer (2007) noted that, “those involved in data analysis must
“bracket” their own understandings, intuitions, or interpretations as much as possible
and focus on the meanings that are inherent in the world of the participants” (pp. 98-99).
The teacher-researcher used bracketing to ensure the data was accurately and
honestly recorded. Bracketing enabled the teacher-researcher’s own preconceptions to
not “taint the research process” (Tufford, 2010, p. 81).

Within this study, the teacher-researcher used a reflective journal as a means
of bracketing to explore areas of possible conflict. Specifically, the teacher-researcher
employed the practice of reflexivity during the journal writing data collection process
to not ‘taint’ the research. Reflexivity can be defined as “the capacity of any system of
signification to turn back upon itself, to make itself its own object by referring to
itself” (Meyerhoff & Ruby, 1992, p. 307). To evaluate her own values, the teacher-
researcher sought to understand the “effects of one’s experiences rather than engaging
in futile attempts to eliminate them” (Ahern, 1999, p. 408). During the preparation of
this study, the teacher-researcher used a reflective journal to record personal issues
that may be taken for granted, her own personal value system and feasible areas of role
conflict (Ahern, 1999). A reflective journal provided the teacher-researcher with a
concrete tool to “explore areas of potential conflict, interest and feelings that may
affect a “lack of neutrality” (Ahern, 1999, p.408). In such a manner, the teacher-
researcher employed reflexivity to bracket her perceptions of the Papulankutja Early
Childhood class.

Finally, the teacher-researcher employed a method of triangulation. Stringer
(2007) argued that “the credibility of a study is enhanced when multiple sources of
information are incorporated” (p. 58). During this study, the teacher-researcher used
two forms of triangulation. These were multiple source triangulation and triangulation based on multiple data-gathering techniques (Berg, 2007). The multiple sources in this study were the participants, teacher-researcher, critical friend and informant (Creswell, 2003). The critical friend provided data through the ten observational frameworks. The informant provided data through three one-on-one interviews. The data from the critical friend and informant were cross-checked to confirm or deny the teacher-researcher's observations of the participants’ responses (Creswell, 2003). The multiple data-gathering techniques included video recording, journal writing, general observational frameworks, individual observational frameworks and one-on-one interviews (Berg, 2007). In these ways the teacher-researcher attempted to be transparent and true to the data.

4.4 DATA COLLECTION

Four methods of data collection were used in the individual case study on the Ngaanyatjarra Lands School Network, Papulankutja Early Childhood class. These were:

a) Video recording and observational framework by the teacher-researcher
b) Journal writing by the teacher-researcher
c) Ten observational frameworks by the critical friend
d) Three one-on-one interviews with the informant.

The teacher-researcher video recorded the classroom activities various times a week to document daily events. The data were recorded using the observational framework. The teacher-researcher maintained a journal throughout the study recording her annotations and impressions of how the participants’ in the remote Aboriginal Early Childhood class responded to Montessori pedagogy. The critical friend observed the classroom and completed observational records. The informant was engaged to assist with the interpretation of events from an Ngaanyatjarra perspective.

4.4.1 Video recording and observational framework by the teacher-researcher

4.4.1.1 Video recording

Video recording can be defined as “A device which, when linked to a television set, can be used to record programmes and play videotapes” (Oxford University Press, 2016). Video recording allowed the teacher-researcher to observe and record the essential elements such as “activities, events, or locations observed, related to
which people, how, at what time, for how long” (Stringer, 2007, p. 178). Observation can be defined by “simply watching the participants” (Gay, Mills & Airasian, 2006, p. 413). Observation can be conducted through two processes: participant observation and nonparticipant observation. Video recording permitted the teacher-researcher to observe in a nonparticipant manner and provide a comprehensive detail of observations. Observing the video recordings from a nonparticipant perspective, the teacher-researcher sought to record the essential elements such as “places, people, objects, acts, activities, events, purposes, time and feelings” (Stringer, 2007, p. 76). During the data collection period video recording occurred three times a week for between one to two hours at different times in the Early Childhood class to gather a diverse range of data. At the end of each day, the teacher-researcher played back the video recording to observe events and activities in the classroom. Essential elements were recorded with the use of an observational framework.

4.4.1.2 **Observational framework (Appendix A)**

An observational framework can be described as a “compass or roadmap that will enable practitioners to keep track of ... research processes” (Stringer, 2007, p. 89). In the evening, the teacher-researcher would watch the video recording and complete the observational framework to accurately record the events and activities in the program. The observational framework provided a structure to compile an uncompassionate account of the program, participants and events (Stringer, 2007). The teacher-researcher used a reflective process when recording information on the observational framework. Reflexivity is defined as “the capacity of any system of signification to turn back on itself, to make itself its own object by referring to itself” (Meyerhoff & Ruby, 1992, p. 307). The teacher-researcher engaged in the process of reflexivity by reviewing the video recordings each evening and making notes in a nonparticipant manner. The importance of this strategy lies in the need to provide accurate and non-biased data for the study.

4.4.2 **Journal writing by the teacher-researcher**

A journal can be used on-site to gather, record and compile data during the collection period (Gay, Mills & Airasian, 2006). Journal writing enables a researcher to record clear, extensive data and to outline a comprehensive account of all the relevant details (Gay, Mills & Airasian, 2006; Stringer, 2007). Writing a journal assisted the
teacher-researcher to consciously record the events in the Early Childhood program. In particular, detailed records of day-to-day routines, occurrences, teaching practices and learning processes were compiled in the journal. At night, the teacher-researcher would add to the journal after watching the video recordings. When writing in the journal, the teacher-researcher used bracketing to ground her analysis and view events from the participants’ perspective. Bracketing enabled the researcher to ‘see’ the situation instead of being involved (Stringer, 2007). Journal writing occurred twice a week for one to two hours at different selected times to gather a diverse range of data.

4.4.3 Ten observational frameworks by the critical friend

The third method of data collection involved the critical friend. There were two elements to this form of data collection: general observational framework and individual observational framework. The critical friend completed five general observational frameworks (Appendix B) and five individual observational frameworks (Appendix C). The critical friend was part of the Ngaanyatjarra Lands School Network Leadership Team and has over 30 years of teaching experience in remote Aboriginal education and mainstream education. Standard Australian English (SAE) is the critical friend’s first language. The critical friend was not Montessori trained nor had any interaction or affiliation with Montessori pedagogy prior to the study. The critical friend observed the classroom for two hours every three weeks of the data collection period.

4.4.3.1 General observational framework (Appendix B)

The general observational framework provided a structure for the critical friend to observe and record Early Childhood program participants. The general observation framework was divided into four Montessori teaching and learning practices: role of the classroom, role of Montessori materials, role of the teacher, and role of the students. The critical friend was asked to comment on two areas. Firstly, the difference between Montessori teaching and learning practices and mainstream teaching. Secondly, in what ways Montessori pedagogy supported remote Aboriginal education. The critical friend completed five general observational frameworks.

4.4.3.2 Individual observational framework (Appendix C)

The individual student observational framework specified a structure for the critical friend to observe and record a single participant in the Early Childhood program.
Within the individual student observational framework, the critical friend was asked to describe the participant’s current work and circle the best description of the work. Descriptions were divided into sections: work type, presentation type, start, engagement and finish. In addition, the critical friend was asked to circle the behaviours the participants were exhibiting in the program. These behaviours were: independence, purposefulness, orderliness, persistence and altruism. The critical friend completed five individual observational frameworks.

4.4.4 Three one-on-one interviews with the informant

The final method of data collection used was one-on-one interviewing. The interviews with the informant were unstructured. Unstructured interviews are based on questions that are provoked by the flow of the interview (Gay, Mills & Airasian, 2006). The informant observed three times in the Early Childhood class over the data collection period. After class, the teacher-researcher and informant carried out the one-on-one interview in an informal setting. Interviews with the informant were video recorded and transcribed after each interview had occurred. Data collection occurred for two hours spread over the data collection period (weeks three, six and nine) to provide a bilingual understanding and insight into student and community life. The interviews presented an opportunity for the informant to detail the situation using her own words and terminology (Stringer, 2007). The informant was interviewed to ascertain her perceptions of the students’ attitudes to school life and Montessori pedagogy. Questions during the interview included:

- From observing in the classroom today, what do you like about Montessori pedagogy?
- From your discussions with parents and caregivers, do you see Montessori pedagogy continuing into Papulankutja Early Childhood students’ home life?
- From your discussions with parents and caregivers, do they feel safe and valued coming into their child’s classroom and working with them to learn?
- From your discussions with Aboriginal and Islands Education Officers’ (AIEO), do they enjoy coming to work in the Montessori pedagogy classroom? Do they feel valued?
- From your experience in the Ngaanyatjarra Lands, do you think Montessori pedagogy works well with the itinerant nature of remote Aboriginal students?
• From your discussions with parents and caregivers, are Montessori materials assisting the Early Childhood students with their home language, Ngaanyatjarra?
• From your observations in the Papulankutja Early Childhood Class, do you think it is good that students work independently?
• From your observations in the Papulankutja Early Childhood Class, do you think Montessori pedagogy aligns with traditional Aboriginal child rearing practices?

The informant was an elder of the Ngaanyatjarra Lands and is the Aboriginal Liaison Officer for the Ngaanyatjarra Lands School Network. The informant was aware of the aims of Montessori pedagogy in the Papulankutja Early Childhood program and had communicated these aims to parents and caregivers of the students. Similarly to the students, Standard Australian English (SAE) was the informant’s third or fourth language. The informant outlined cultural beliefs and practices that may have impacted the participants’ responses to Montessori pedagogy.

4.5 RESEARCH PARTICIPANTS

There was a total of 18 students in the class, 17 were Indigenous and these 17 formed the participants of this study. These students ranged from Kindergarten to Year 2. The participants were composed of 10 female students and 7 male students as shown in Table 4.2. The participants are representative of the Early Childhood students living in remote Western Australia and in the Ngaanyatjarra Lands School Network.

Table 4.2

Participants of the research

<table>
<thead>
<tr>
<th>Age</th>
<th>Female</th>
<th>Male</th>
<th>Percentage of students in each year level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>4</td>
<td>2</td>
<td>35%</td>
</tr>
<tr>
<td>Pre-Primary</td>
<td>5</td>
<td>1</td>
<td>12%</td>
</tr>
<tr>
<td>Year 1</td>
<td>6</td>
<td>3</td>
<td>29%</td>
</tr>
<tr>
<td>Year 2</td>
<td>7</td>
<td>2</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: Year levels are outlined in correlation to Department of Education Western Australian standards.
The participants did not speak Standard Australian English (SAE) when they first attended formal schooling. In the classroom, the teacher-researcher used the participants’ home language, Ngaanyatjarra, for instructional and verbal interaction. The participants do not know basic English terms for classroom objects, actions or communication. SAE will often be a third or fourth language to the Indigenous participants.

Similarly to the students, parents and/or caregivers of the Aboriginal participants often use SAE as a third or fourth language. Parents and/or caregivers frequently have little or no secondary education and simple tasks such as completing compulsory government department forms and applications are not possible without assistance. The participants’ parents, caregivers and families have transitioned from a nomadic hunter-gather lifestyle in the 1940’s to mission-based living to the present time (Brooks, 2015).

The participants typically walk to school from their homes. The Aboriginal participants have large extended families living in the community and often do not reside in the same home as their parent(s) or legal guardian. Due to the transient nature of remote communities, participants will often travel to other communities for significant cultural events such as funerals, men’s business, women’s business, sporting events and cultural programs such as painting and dancing. The selected students, however, generally return to the Papulankutja Remote Community once a particular event ends.

4.6 TRUSTWORTHINESS

Qualitative researchers use a comprehensive process to ensure the study is conducted in a trustworthy manner. Trustworthiness is vital during the research to provide accuracy of the results from the situation of the “researcher, the participant, or the readers” (Creswell, 2009, p. 191). Trustworthiness consists of four criteria: credibility, transferability, dependability and confirmability (Stringer, 2007). Table 4.3 details the procedures used in this study to establish trustworthiness.
Table 4.3
Establishing trustworthiness (Adapted from Stringer, 2007, p.58)

<table>
<thead>
<tr>
<th>Quality criterion</th>
<th>Research technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>Triangulation</td>
</tr>
<tr>
<td></td>
<td>Member checking</td>
</tr>
<tr>
<td>Transferability</td>
<td>Detailed description of the phenomenon researched</td>
</tr>
<tr>
<td>Dependability</td>
<td>Audit trail</td>
</tr>
<tr>
<td>Confirmability</td>
<td>Triangulation</td>
</tr>
<tr>
<td></td>
<td>Reference to the researcher’s beliefs and assumptions</td>
</tr>
<tr>
<td></td>
<td>In-depth methodological description</td>
</tr>
</tbody>
</table>

4.6.1 Credibility

Credibility provided reliability and plausibility to this study (Stringer, 2007). Two techniques can be used to assist credibility (Bryman, 2008). These are triangulation and member checking. Triangulation refers to making “use of multiple and different sources, methods, investigation, and theories to provide corroborating evidence” (Creswell, 1998, p. 202). The teacher-researcher used two methods of triangulation: multiple source triangulation and multiple data-gathering techniques (Berg, 2007). The multiple sources in this study were the participants, teacher-researcher, critical friend and informant (Creswell, 1998). Multiple data collecting techniques included teacher-researcher observational and journal writing, critical friend observational framework (general and individual) and informant observation followed by one-on-one interview.

The second technique used to ensure credibility was that of member checking. Member checking refers to “participants are given opportunities to review the raw data, analyses, and reports derived from research procedures” (Stringer, 2007, p. 58). Member checking was used by the teacher-researcher to confirm the accuracy of the results with the critical friend. The critical friend reviewed the final general and individual frameworks to ensure her observations in the Montessori pedagogy Early Childhood program were precisely represented.
4.6.2 Transferability

The second demand of trustworthiness is transferability. Transferability is the ability to move the research into other settings or contexts (Stringer, 2007). This research was specific to a particular remote Aboriginal Early Childhood classroom. However, the sample size is representative of other Early Childhood classes in the Ngaanyatjarra Lands School Network. Hence therefore, the findings can be transferred to other remote Early Childhood contexts. In this study the teacher-researcher aimed to provide “thick descriptions” for the benefit of other readers and in doing so enhance the possibility for transferability (Guba & Lincoln, 1985, p. 316). Furthermore, the teacher-researcher delivered a detailed outline of the context in Chapter Two. Readers are able to self-evaluate the possibility of transferability within their own contexts.

4.6.3 Dependability

Dependability is providing a “detailed description of the research process” (Stringer, 2008, p.53). Dependability ensured research processes were clearly outlined and open to examination (Stringer, 2007). The teacher-researcher attempted to be transparent and provide detailed information to ensure another researcher would reach a similar conclusion to this study (Stringer, 2007). Specifically, to ensure the research could be repeated, the teacher-researcher implemented an “auditing approach” (Bryman, 2008, p. 379). All documentation for each step of the research process is stored to ensure procedural dependability. The documentation includes raw data of video recording of the classroom, journal entries, general observational frameworks, individual observational frameworks, video recordings of one-on-one interviews, interview transcripts and documentation of the process of organisation and classification of raw data synthesis.

4.6.4 Confirmability

The final criterion of trustworthiness is confirmability. Confirmability, suggests the level at which the results of the study “actually took place” (Stringer, 2007, p.59). In qualitative research, confirmability refers to the researcher’s ability to be objective (Shenton, 2004). Techniques used to ensure confirmability include triangulation and procedures of an audit trail. These techniques limit the potential for researcher bias. The teacher-researcher of this study attempted to carry out procedures to establish documentation of the data analysis process. In addition, Chapter One
outlines a personal statement of the teacher-researchers beliefs and assumptions in relation to this study.

4.7 DATA ANALYSIS

Data analysis is the process by which raw data is organised and summarised. The method of analysis for the qualitative data followed a format similar to that outlined by Miles and Huberman (1994) comprising data collection, data reduction, data display and verification/conclusion drawing. Figure 4.2 provides an overview of the data analysis.

[Diagram of data analysis process]

Data reduction is the process of organisation and classification. The data reduction process aimed to be a systematic examination of the data collected (Leedy & Ormond, 2001) and to develop understanding of the phenomenon being researched (Hsieh & Shannon, 2005). The teacher-researcher gathered and colour-coded the raw data to draw common themes or key words. The teacher-researcher colour-coded the data to identify common themes, patterns, symbols, topics and shared mind-sets. Within the study, the teacher-researcher interpreted the words and format for deeper meaning and symbolism rather than counting the number in content analysis (Berg, 2007; Payne & Payne, 2004).

Data display provides “an organised, compressed assembly of information that permits conclusion drawing and action” (Miles & Huberman, 1994, p. 11) Data displays can be presented in a chart, diagram or matrix format. The teacher-researcher used a
chart format to organise and classify the themes and key words evident in the data under the four specific research questions specific to this study. These four specific research questions were used as an initial form of data organisation providing a target for the collection of data in the chart (Miles & Huberman, 1984). The data display presented key themes within the data. Table 4.4 outlines the key themes.

Table 4.4

Key themes within the collection of data

<table>
<thead>
<tr>
<th>Specific Research Question 1: Student Response</th>
<th>Concentration and engagement</th>
<th>Student autonomy</th>
<th>Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Research Question 2: Student Behaviours</td>
<td>Suits students with high transiency</td>
<td>Student altruism and persistence</td>
<td>Peer teaching/peer modeling</td>
</tr>
<tr>
<td>Specific Research Question 3: Language Development</td>
<td>One on one learning</td>
<td>Aboriginal and Islander Education Officers [AIEO] Participation</td>
<td>Montessori curriculum and development</td>
</tr>
<tr>
<td>Specific Research Question 4: Community Involvement</td>
<td>Visits from parents and caregivers</td>
<td>Classroom environment and structure</td>
<td></td>
</tr>
</tbody>
</table>

The final phase of data analysis is verification/conclusion drawing. This phase of the data analysis process requires the researcher to reflect and understand the results of the research. The process of reflection and understanding may take an extended period of time (Miles & Huberman, 1984).

4.8 ETHICAL CONSIDERATIONS

The research was conducted in accordance with the guidelines of: (a) The University of Notre Dame Australia, (b) the Department of Education Western Australia regulations of confidentiality and parental/caregiver consent and (c) the Ngaanyatjarra Lands Council approval for Research. Approvals were sought and obtained from the Human Research Ethics Committee at UNDA (Appendix D), Department of Education Western Australia (Appendix E) and the Ngaanyatjarra Lands Council (Appendix F). The students, parents/caregivers and school staff were guaranteed anonymity. Throughout the research, names were not used. Relevant information was provided to
parents/caregivers of the students to ensure they were fully aware of the research purpose. Parents and caregivers of the participants received information sheets with a Ngaanyatjarra translation and consent forms with a Ngaanyatjarra translation to obtain informed consent (Appendix G). All journal entries, interview transcripts, observation frameworks and other data collected throughout the study are stored in secure facilities at the research office at The University of Notre Dame Australia for the next five years. All video recordings collected were for teacher-researcher reflection and not for public viewing. They are kept in secure facilities at the research office at The University of Notre Dame Australia for five years and will be destroyed thereafter.

4.9 DESIGN SUMMARY

Table 4.5 presents a chronological summary of the research design.

Table 4.5

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Source</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2013</td>
<td>UNDA</td>
<td>Ethics clearance</td>
</tr>
<tr>
<td>October 2013</td>
<td>Department of Education Western Australia</td>
<td>Director’s approval to undertake research in a Department of Education Western Australia school</td>
</tr>
<tr>
<td>October 2013</td>
<td>Parents and caregivers of participants’</td>
<td></td>
</tr>
<tr>
<td>October to December 2013</td>
<td>Participants’, critical friend and informant</td>
<td>Data collection through video recording, observational frameworks and one-on-one interviews carried out for those wishing to participate in the inquiry</td>
</tr>
<tr>
<td>January to December 2014</td>
<td></td>
<td>Analysis of data</td>
</tr>
<tr>
<td>January 2015 to July 2016</td>
<td></td>
<td>Draft report</td>
</tr>
<tr>
<td>August 2016</td>
<td></td>
<td>Submit thesis</td>
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</tbody>
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4.10 CONCLUSION

The research sought to explore the effect of Montessori pedagogy within a remote Aboriginal Early Childhood classroom. This chapter explained the research design that underlined and directed the study. The chapter provided justification for the
use of interpretivism as the theoretical perspective of this qualitative research and outlined the reasons for selecting an individual case study. Consideration was also given to explaining the use of data collection methods and data analysis practices. The following chapter will present the data on the four central categories of student response; student behaviour; language development; and community involvement within the remote Aboriginal Early Childhood class observed in this study. The data presented for each category will address the four specific research questions.