Understanding Orientation and Mobility learning and teaching for primary students with vision impairment:

A qualitative inquiry

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(Grad Dip Dog Guide Mobility, Grad Dip Orientation and Mobility,

Grad Dip Ed, M Ed, M Autism Studies, COMS)

In partial fulfilment of the requirements for the

Doctor of Philosophy (Education)

In the College of Arts, Society and Education

James Cook University

Date of Submission: December 31, 2018

Acknowledgements

I would like to thank my supervisors Associate Professor Paul Pagliano, and Associate Professor Margaret Carter for sharing their professional knowledge, and for their continued enthusiasm, patience, leadership and support of my research. Paul and Margaret, I am grateful for the opportunity to have shared this journey with you. Thank you for your willingness to share your professional insights and experiences with me. Mostly importantly, I give thanks for your daily smiles and genuine interest in this project.

I would like to thank my colleagues who volunteered to partake as the specialist panel. I am indebted to them for their continued peer and professional support, friendship, mentoring, guidance, and willingness to share their knowledge and practice.

I would also like to thank the students, parents, and school communities from North and Far North Queensland who volunteered to partake in this study for their cooperation.

I would especially like to thank my family, for their interest, unconditional support and encouragement.

Thank you,

Katrina Blake

Statement of Contribution of Others

Nature of assistance**:** Financial support

Contribution: Scholarship

Name/ Title: Australian Government Research Training Program Stipend

Nature of assistance: Editing services

Contribution: Proofreading

Name/Title: Elite Editing

Editorial assistance was restricted to D and E of the *Australian Standards for Editing Practice*. Editorial assistance did not include document formatting or proofreading of the front matter, references, or appendices.

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Declaration on Ethics

The guidelines for research ethics informed the research presented and reported in this thesis. The National Statement on Ethical Conduct in Human *Research* (NHMRC 2007), and the Code for the Responsible Conduct of Research (2015) identify these guidelines. The Code for the Responsible Conduct of Research is adapted from *Australian Code for the Responsible Conduct of Research* ["the National Code"], developed jointly by the National Health and Medical Research Council, Australian Research Council and Universities Australia, and published in 2007.

The proposed research methodology received clearance from the James Cook University Experimentation Ethics Review Committee (see Appendix A) and was allocated the approval number H6845. The Department of Education and Training Research Services provided approval for research (550/27/1754).

Abstract

Understanding Orientation and Mobility learning and teaching for primary school students with vision impairment:

A qualitative inquiry.

Orientation and Mobility is a uniquely crafted pedagogical practice blending specific micro-teaching skills to enable students with vision impairment to achieve functional interpretation of extra-personal and peri-personal space. Linked to student wellbeing, social participation, employment and self-determination, Orientation and Mobility is a cornerstone of equity and access for students with vision impairment. Despite this, in mainstream primary education little is known about Orientation and Mobility learning and teaching and how it aligns with the Australian Curriculum.

Orientation and Mobility learning and teaching is examined from the perspectives of three female primary school students with vision impairment, a parent, a teacher, the researcher, and a panel of Orientation and Mobility specialists. These perspectives are interwoven with a detailed reflexive interrogation of the Orientation and Mobility lessons over one school semester within the contexts of the Far North and North Queensland Department of Education regions and the Australian Curriculum. This study explores how one Queensland Orientation and Mobility teacher, the researcher, explicitly communicates non-visual, visual, tactile, and auditory concepts to primary school students with vision impairment.

Drawing on Bronfenbrenner's bioecological systems theory, the Orientation and Mobility learning experiences are captured through an interpretative methodology comprising narrative inquiry and autoethnography, both underpinned by hermeneutic phenomenology. Insider researcher data are gathered from semi structured interviews, online panel responses, and audio recordings of the Orientation and Mobility lessons. Autoethnographic field notes, document materials, and reflexive teaching journals are used to support the thematic and discourse analysis.

Results confirm that for the non-expert participants there was a substantial lack of awareness of the impact of vision impairment on learning and development, and the potential contribution of Orientation and Mobility. Systemic and cultural barriers to equitable inclusive education for these North and Far North Department of Education students with vision impairment were uncovered. Orientation and Mobility learning and teaching was clearly shown to overlap with and embed content from the Australian Curriculum.

A key finding was the isolation of a core set of micro-teaching skills pertinent to Orientation and Mobility learning and teaching. These skills were identified as: Orientation and Mobility teacher attention to dialogic language and feedback, extended interaction wait times, and shared attention to spatial and contextual environments within the Orientation and Mobility lesson. As this skill set can be used to design Orientation and Mobility learning and teaching experiences that explicitly scaffold the development of non-visual, visual, tactile, auditory, and kinaesthetic pre-cursor concepts, it was given the appropriated name of *practice architecture*.

An important practical outcome of the research was the formulation of an ontogenetic model of Orientation and Mobility learning and teaching. This model, which closely follows the natural development of each student with vision impairment, may serve as a tool that enables teachers to more systematically chart the biophysical attributes of the student with vision impairment. It thereby provides a learning and teaching framework for designing interactions with students with vision impairment. The ontogenetic framework has the potential to facilitate greater integration of what–and–how learning occurs in Orientation and Mobility with what–and–how learning might occur in the regular classroom.

Key Words: Orientation and Mobility, vision impairment, Australian Curriculum, qualitative, autoethnography, narrative inquiry, hermeneutic phenomenology, insider researcher, thematic, discourse, pedagogy

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Abbreviations

ACARA	Australian Curriculum and Assessment Reporting Authority
AFB	American Foundation for the Blind
ARACY	Australian Research Alliance for Children and Youth
CCT	Critical and Creative Thinking
DoE	Department of Education
ECC	Expanded Core Curriculum
ETA	Electronic Travel Aid
EYLF	Early Years Learning Framework
HPE	Health and Physical Education
IDEA	Individuals with Disability Education Act
IRE	Initiate-Response-Evaluate
JCU	James Cook University
LD	Lexical Density
MLU	Mean Length of Utterance
NSO	Non-school Organisation
O&M	Orientation and Mobility
OECD	Organisation for Economic Co-operation and Development
PE	Physical Education
PISA	Program for International Student Assessment

PSC	Personal and Social Capabilities
SPEVI	South Pacific Educators of the Vision Impaired
UNICEF	United Nations Children's Emergency Fund
US	United States
VI	Vision Impairment

Chapter 1: Proposal

My thesis begins with a description of my research proposal. This proposal starts with the development of my research rationale, which was built on a call for research into teaching practices for students with a disability from the Deloitte Queensland disability review (Department of Education [DoE] publishing as DET, 2017). A general background and context is then provided, beginning with a personal reflection on my reasoning for undertaking this research. The aims and significance of the research are then outlined, followed by a brief explanation of the research methodology and approaches to be used. The chapter closes with a list of the key terms and their definitions, plus an overview of the remaining chapters.

In the field of inclusive education, Australia has made significant progress with policy, programs and practices designed to support all students to reach their highest potential (DoE publishing as DET, 2017). However, as with many international schooling systems, there is still considerable disparity between the current policies and practices and those required to effectively support every student (DoE publishing as DET, 2017). Acknowledging this disparity, and to move forwards with inclusive and equitable education for all, the Queensland government has called for further research, analysis, and observation (DoE publishing as DET, 2017). In response to this call, the Queensland Minister for Education initiated a “wide-ranging independent review into the education of students with disability in the Queensland state school sector” (DoE publishing as DET, 2017, p. i). Consequently, in 2016, the Deloitte disability review (DoE publishing as DET, 2017) executed an examination of effective contemporary teaching practices in accordance with international approaches to inclusive education at the school and system level.

The Deloitte disability review was the first of its kind in Queensland state schools, and compared the levels of achievement reported by schools to students, parents and guardians (A to E standards); school attendance; post-school employment; and systemic, schoolwide, and teacher practices for students with disabilities and students without a verified disability. The comparative review resulted in a comprehensive set of findings. For

example, one result indicated that only 6% of verified students with a disability received an A grading (the highest), compared with 11% of students without verified disability (DoE publishing as DET, 2017, p. 11). A particularly notable finding—obtained by translating national testing scores into equivalent years of learning—was the difference in learning outcomes for students with a verified disability, who were found to be one to two years behind their peers who were not verified with a disability (DoE publishing as DET, 2017, p. 12). Specifically, the review concluded that, on average, students with a disability systematically underperform academically.

Examination of Australian attendance and post-school employment data revealed similar disparities (DoE publishing as DET, 2017). Students with a disability were absent more frequently from school than were their non-verified peers. Further, only 33% of post–Year 12 students with a disability were in paid employment, compared with 63% of those without a disability (DoE publishing as DET, 2017). The results clearly demonstrate a substantial gap between students with and without a disability from a range of equality measures, including equality of opportunity, equality of representation, and equality of outcome. A particularly pertinent finding related to a summary analysis of the data collected, which argued that up to half of the variation in outcomes for students with a disability could be addressed by ensuring universally accepted educational practices for all students.

The Queensland Deloitte review (DoE publishing as DET, 2017) results indicated that variations in student performance were more likely to be influenced by differences in practice and pedagogy in the individual classroom. The review stated that “a key factor in determining success in teaching for students with a range of abilities is the teacher’s ability to tailor their delivery to every child in the classroom” (DoE publishing as DET, 2017, p. 48). The influence of good teaching on student outcomes was also recorded in earlier Australian studies on literacy outcomes by Rowe (2006), Masters (2009) and Hattie and Yates (2014). The results of these studies were summarised by Fisher (2014, p. 4), who reported that “we cannot expect students to know themselves or their world” without essential teaching practices. Therefore, in view of these studies and the results from the current data, the

Queensland Deloitte review concluded with a call for further empirical analysis and exploration of the "school effect" (DoE publishing as DET, 2017, p. 141) and its influence on learning outcomes for students with a disability.

Against this backdrop and with a view to building an evidence base regarding "what works" (DoE publishing as DET, 2017, p. 141), specifically for schools and students with vision impairment (VI), I will explore the pedagogical practice employed in orientation and mobility (O&M). Specifically, I interrogate the pedagogical practice within O&M learning and teaching with three students with VI in the North and Far North Queensland regions of the Department of Education (DoE). In particular, I explicitly examine the possible alignment of O&M learning and teaching for these students with the Australian Curriculum.

Background to the Research

In a recent Australian study, secondary school students with VI recorded 10% of their school learning time as "doing nothing" (Jessup, Bundy, Broom, & Hancock, 2017). At times, this involved whole lessons without work to complete because of inaccessible practices and classroom activities. In addition, Kain, Stancliffe, and Chaparro's (2017) Australian study found that one-third of adults with VI were recorded as underemployed, and 58% were unemployed, but not of their own choice. Similar results were evidenced in the 2015 second American National Longitudinal Transition Study, which reported that students with VI achieved, on average, in the thirtieth percentile for literacy and fortieth percentile for numeracy, with approximately 60% of all students with VI below the reading ability for their age group (American Foundation for the Blind [AFB], 2015b). Further, these American statistics revealed that approximately "38% of working-age adults with visual impairment [VI] are employed, compared to 76% of adults without disabilities" (Cmar, 2015a, p. 1), with no evidence of improvement over recent years, despite increased levels of inclusive education (Lee, Erickson, & von Schrader, 2014).

Students with VI have a range of functional vision abilities. The majority of students with VI have some usable vision, with only a small number of students with VI in the USA are identified as totally blind (Hall-Lueck, 2004). There are two main ways of defining a VI, based

on visual function and functional vision. Visual function typifies a medical or clinical diagnosis, and is often described quantitatively (objectively) as either the loss of organ function or the degree of available vision (Hall-Lueck, 2004). Alternatively, functional vision refers to a person's qualitative description (subjective) of his or her visual behaviours or changes in visual behaviours. There are many causes, types, and severities of VI. There are also many aspects of visual function, which include, but are not limited to, visual acuity (the ability to resolve detail), accommodation (the ability to focus), field of vision (the area that can be seen), colour vision and adaptability to light (Douglas et al., 2009). Thus, functional vision is affected by multiple variables and pertains to a person's visual skills and abilities across different dynamic real-world environments (Hall-Lueck, 2004).

Vision is a unifier of sensory modalities, a primary learning sense, and a major motivational element in incidental learning (Dodd & Conn, 2000; Mclinden, 2012). For example, Ferrell (2011) estimated that the eyes absorb about 80% of the sensory information sent to the brain. Current visual cortex, perceptual and cognitive research emphasises the strongly dominant role of vision in learning and development for most children (Amiez, Champod, Wilson, Procyk, & Petrides, 2015; Bedny & Saxe, 2012; Nagel, 2012). Students with VI tend to miss the affordances of vision and subsequently must develop and learn alternatives to the predominant visual perceptual strategies for gathering and processing information taught in the regular classroom. According to McLinden, Douglas, Cobb, Hewett, and Ravenscroft (2016), there are unique challenges to learning for students with VI.

The understanding that students with VI have unique learning challenges aligns with the work of Piaget (1999), who highlighted that important precursor developmental concepts arise from visual exploration, and lack of such exploration without appropriate scaffolding may lead to conceptual delays. Without the benefit of full visual information to aid the growth of essential concepts and development, a child with VI can be adversely affected across physical, cognitive, communicative and adaptive domains (Anderson, 2011; Bischof, 2008; Ferrell, 2011). Delays in fine and gross motor, language, shared affect, and exploratory

behaviour for students with VI can subsequently affect conceptual development (Mclinden, 2002).

Research suggests that vision powerfully and positively influences learning and development for sighted children (Erickson, Hatton, Roy, Fox, & Renne, 2007; Koustriava & Papadopoulos, 2012). When vision is compromised in some way, students with VI may need help to develop appropriate alternative learning strategies (Barclay, 2011). These alternative learning strategies emerge through multiple and repeated exposures that involve concrete, tactile, and manipulative actions paired with explicit interrelated language experiences (Emerson, Sitar, Erin, Wormsley, & Herlich, 2009; Tobin & Hill, 2012; Wiener, Welsh, & Blasch, 2010). Many of these strategies potentially align with O&M for children.

O&M is a specialist field of knowledge and skill for people with VI. O&M describes a blend of a traditional and developmental disability-specific erudition that focuses on "spatial concepts and skills, perceptual skills, environmental knowledge, sensory development, motor development, formal mobility skills, decision-making, and interpersonal skills" (Cmar, Griffin-Shirley, Kelley, & Lawrence, 2015, p. 3). O&M is thought to have originated in 1947 as a way to progress the rehabilitation of United States (US) veterans who were blinded in World War II (Welsh & Hudson, 2011). Since then, the long white cane has been synonymous with VI, blindness and the discipline of O&M.

The notion that mobility involves the technical skills required to move independently and safely through space is supported by Yarbrough (2013). The attainment of long-cane skills continues to form the basis of contemporary formal O&M assessment, checklists, curricula, research, and training programs (Wiener et al., 2010). The attainment of long-cane skills as a major observation of O&M practice is evidenced and reinforced by the recently released second edition of the book *Orientation and Mobility Techniques* (Fazzi & Barlow, 2017), which is a clear illustration of the almost exclusive focus on technical skills in O&M teaching across an heterogeneous population of people with VI.

O&M specialists in USA predominantly refer to O&M as long-cane travel skills (Lahav, Schloerb, & Srinivasan, 2015a). Using a qualitative research methodology,

American researcher Kircher-Herring (2015) surveyed 21 O&M specialists' perspective of O&M. These O&M specialists overwhelmingly identified the long-cane, road crossing and public transport skill development as components of O&M. Likewise, Cmar et al. (2015, p. 3) identified traditional O&M skills as "guiding techniques, long cane techniques, travel in residential and business areas, crossing streets, locating destinations, and use of public transportation". Teaching these skills inherently defines O&M as a unique highly specialised field with a long and credible professional history (Wiener et al., 2010). However, for me, as both a teacher and an O&M specialist, O&M involves more than these aspects of mobility. In this thesis, I argue that, to guide students' O&M learning in ways that go beyond the technical, it is necessary to ensure that students' learning in O&M aligns with classroom learning.

Orientation emerged as a significant aspect of O&M in the USA with the introduction of public school specialist teaching in the 1960s (Wiener et al., 2010). Initially, orientation was identified as the "process of using sensory information to establish and maintain one's position in the environment" (Hill & Ponder, 1976, p. 3). Although this early definition is still cited in the current literature (Griffin-Shirley, Kelley, & Lawrence, 2006; Hill, 2015; Kircher-Herring, 2015), several alternatives have also been suggested. For Anthony, Bleier, Kish, Pogrund, and Fazzi (2010, p. 327), orientation is "knowing oneself as a separate being, where one is in space, where one wants to move into space, and how to get to that place". Likewise, for Crudden (2015) and Lahav et al. (2015a, p. 1), orientation is the cognitive and "systematic collection of information from the environment". This systematic collection of information is different to what occurs for a student with vision who can unconsciously filter a broad range of information from a safe distance. Often, the student with VI does not have a reliable visual safety net. They must be so close to an environmental space or object to interpret it that their exploration becomes more multisensory (Saerberg, 2010).

A review of contemporary O&M theories and practices indicates that orientation skills require specialised and targeted learning and teaching (Brannock & Golding, 2000; Kircher-Herring, 2015; O'Mea, 2013; Pogrund & Fazzi, 2010; Yarbrough, 2013). Further, the

integration of O&M into and across school curricula activities logically should help to increase the effectiveness of both O&M and school curricular activities for students with VI (Cmar et al., 2015). The American *Individuals with Disabilities Education Act* (IDEA) commissioned into US law on 3 December 2004 and operational from 1 July 2005, nominated that O&M be considered for all students with VI (Ambrose-Zaken, 2016; Trief, Lisi, Cravello, & Yu, 2007). IDEA specifically defines O&M as a related service, and identifies the O&M specialist as not only fundamental to the student's teaching and learning team, but also best equipped to provide O&M services. Emerson and Corn (2006, p. 340) explained that O&M specialists scaffold students with VI to "maximise their perceptual capabilities to assess situations dynamically and decide on the best course of action". The concept of O&M specialists scaffolding and maximising the perceptual capabilities of students with VI aligns with the American idea of an expanded core curriculum (ECC) (Hatlen, 2006) and the European idea of an additional curriculum (Douglas et al., 2009). These additional curricula include concepts and skills that require specialised teaching for students with VI for them to learn ways to "compensate for decreased opportunities to learn incidentally by observing others" (Texas School for the Blind and Visually Impaired [TSBVI], 2018, para. 1).

An O&M specialist is a certified person who expedites the perceptual capabilities of people with VI to maximise and assess dynamic travel situations (Alkhanifer, & Ludi, 2014). In Australia, the terms "O&M instructor" and "O&M specialist" are used interchangeably. For the purposes of this study, I use the term "O&M specialist" to refer to all professionals who have received tertiary training as an O&M instructor. According to American researchers Cmar et al. (2015, p. 3), O&M specialists may "assume many roles and provide a continuum of services, ranging from direct services provided to students with VI, to indirect services (e.g., consultation and in-service training) provided to professionals who have direct contact with students". In Australia, O&M services are generally provided by O&M specialists from not-for-profit agencies (Deverell & Scott, 2014), colloquially known in Queensland as "non-school organisations" (NSOs). The provision of O&M to students with VI in Queensland is multifarious. This is because, in Queensland, the DoE also employ O&M specialists who

possess a teaching degree, as well as their tertiary O&M qualification (Deverell & Scott, 2014). Known as O&M advisory teachers, these teachers (including me) provide a range of direct and indirect programs to students, and provide consultation and capacity-building endeavours to school communities, whole-school management, and class teachers.

In Queensland there appears to be a lack of information regarding the specific guidelines and procedures used in determining the need for O&M. Moreover, in the Queensland DoE, there appears to be a "lack of accountability" (Bischof, 2008, p. 3) for O&M learning outcomes for students with VI. O&M service provision in general is rendered more complex and obscure. This is because, as explained by Bischof (2008) when talking about the US situation, O&M instructional decisions are often based only on the "opinions" (p. 68) of the O&M specialists.

Through my personal communication with teaching professionals I learnt that particular problems may be encountered. For example, O&M specialists without teaching backgrounds may have disparate understandings of school cultures, presenting O&M from alternative perspectives to that presented by Queensland DoE O&M teachers. Here I use the term school culture, in accordance with Smith and Smith's (2009) definition, as the education professionals' "shared values, beliefs, and norms" about the delivery of educational content. Challenges associated with external service providers were highlighted by the Deloitte Queensland review (DoE publishing as DET, 2017), which reported that some schools refused to cooperate with external service providers, and that non-school specialists lacked understanding of specific school contexts. The Deloitte review (DoE publishing as DET, 2017) determined that "opinions across the state schools sector vary as to how to best integrate these skills [specialist services] into education delivery" (p. 166).

Similar to non-school therapy, O&M service provision to students with VI is regarded as being impenetrable. For instance, in my professional experience, conversations about O&M service provision with school leadership teams tend to reach an impasse. This is often because of a lack of understanding in schools about O&M and a corresponding lack of documentation that stipulates any curricula alignment for the different levels of O&M service

provision. Consequently, I have not yet been able to identify successful ways to share the ongoing complexity of holistic O&M learning and teaching with my non-specialist teacher colleagues.

Learning and Teaching O&M

Since my initial training in Australia in the 1980s, O&M has become a key feature of disability-specific learning for students with VI (Hatlen, 2006). When I first entered the O&M profession, my learning focused on training adults, who were adventitiously blind, how to mobilise and navigate using a long cane. My instruction in the use of the long cane involved donning a blindfold for half a day, every day for 12 months, and traipsing around the streets of suburban Melbourne. My training included a single module on learning and development of children with VI, followed by small amounts of instruction of students with VI during my three-month rural practicum in Rockhampton, Queensland. More recently, as in the US, O&M is now regarded as part of the ECC (TSBVI, 2018) and an essential component of education for young children with VI (Pogrund & Fazzi, 2010).

However, my experience with adults with VI and their dog guides afforded me particular insight into the difficulties that people with VI face when interpreting, understanding, and navigating a visual world. Two decades later, as I moved into my primary school teaching career, these earlier experiences with adults provided me with a broader understanding of the independent travel experiences of people with VI. As I began to explore access to the curriculum for the students with VI in my own classroom, and as head of curriculum in primary education, I developed new perspectives on O&M training. I experienced a conceptual shift in understanding the purpose of O&M for people with VI. For me, O&M was no longer purely about independent route travel, as taught in my base training. I no longer understood O&M merely as an instructional intervention for people with VI to attain a set of technical skills. In line with the changes occurring to teaching in primary schools and to the learning expectations stipulated in the Australian Curriculum (ACARA, 2018), for me, O&M training transformed into O&M learning and teaching. I became much more interested in the pedagogy of O&M that can enable people with VI to interpret non-

visual space. However, despite my change in perspective, the published O&M literature of the 1990s and 2000s largely remained focused on the same technical and instructional techniques of my initial O&M training in the 1980s.

As I engaged more with schools and communities as an advisory teacher of O&M, patterns emerged. I became aware of variations in the level of expectations for students with VI compared with their sighted peers. I perceived clear discrepancies in the equitable and accessible nature of their education, compared with the other students. Students with VI were often given fewer opportunities to reach their highest potential than were sighted students. This was because students with VI were frequently the only student with VI in their class, with teachers who appeared unable to translate the visual learning being taught to the sighted students into an equivalent non-visual learning experience. Despite this, some individuals with VI were managing better than others. Thus, I began to question which factors enabled those individuals to be more accomplished and self-efficacious. Which essential learnings had they gained that enabled them to function more effectively in a sighted environment? I wished to better understand how I could help facilitate greater levels of self-efficacy in the students with VI with whom I worked by tapping into what was occurring for these students. I was particularly interested in whether O&M was playing a key role in the process.

Over the years, these musings led me to undertake a small qualitative research project (Blake, 2015) examining the O&M learning and teaching practices of three of my Queensland O&M advisory teacher colleagues. Like me, my colleagues were qualified, registered, and experienced primary school teachers, in addition to being trained in O&M. From that research, I determined a difference in the pedagogy being used in this new form of O&M and what I was observing in regular classroom teaching practices. During this time, I also anecdotally observed that the majority of students with VI that I was working with in the North and Far North Queensland DoE regions (across approximately 70 state primary and high schools) were either just at or just below the literacy and numeracy levels of their sighted peers on school semester achievement reports. When I asked teachers about the

students' academic progress, I often received similar responses, such as, "Oh, they are doing alright". However, the teachers invariably added "for a child with vision impairment", as though it were expected or even acceptable for a student with VI to not be at the same level as their peers. My reply was to reframe the question to ask how the student was "progressing as a Year 3 student".

My experience of preparing an inclusive curriculum for students with disabilities (as a teacher of students with disability, head of curriculum, and class teacher, coupled with my involvement as a teacher of O&M), provided me with a distinctive lens through which to view O&M learning and teaching. Then, as an advisory teacher, I found myself in the unique position of being able to highlight the inequity for students with VI regarding their learning outcomes. I recognised that, as an O&M specialist, I was in a prime position to interrogate O&M learning and teaching to better understand whether O&M could provide one plausible approach to improve outcomes for students with VI. My research aim and objectives for this doctoral research consequently stem from my professional and personal passion in ensuring that education systems and practices support all students, particularly those with VI, to realise their highest potential.

Aims of the Research

The aim of this research is to better understand the practice of O&M learning and teaching for primary school–aged students with VI, and to examine the possible alignment of O&M with the Australian Curriculum. Thus, the research aim is divided into two research focus areas. The first focus area is to better understand the practice of O&M in the DoE for primary school students with VI. The second focus area is to better understand the alignment of O&M learning and teaching with the Australian Curriculum.

A gap exists between the learning outcomes for students with VI and their sighted peers in Queensland (DoE publishing as DET, 2017). This gap indicates that current teaching practices are not meeting the learning needs and future aspirations of students with VI. Reducing this gap requires investigation into viable learning and teaching approaches (DoE publishing as DET, 2017). O&M is an integral part of overall learning for students with

VI (Hatlen, 2006). In this research project, O&M learning and teaching is identified as one plausible approach to improve learning outcomes for students with VI. This is because O&M focuses on helping the student with VI to develop non-visual competencies to better understand the world. No other learning area in the Australian Curriculum specifically focuses on this disability specific skill for students with VI.

However, there is currently minimal research in the field of O&M pedagogical teaching practices or the application of O&M into primary school curricula. As Scott (2015) observed, much of the research into O&M remains primarily focused on quantitative measures of the use of long cane, road crossing safety, and electronic travel aids (ETAs). Examples of this type of research include Kim and Emerson's (2014) study into the reliability of traditional cane techniques for detecting drop-offs, and Lahav, Schloerb, and Srinivasan's (2015b) investigation of virtual O&M travel through auditory and haptic feedback. These enquiries are important for the continued improvement of traditional and technical O&M skills. However, in addition to this traditional and technical research, there is also a need to explore more broadly the pedagogical practices of O&M, so that the learnings from O&M can be transferred into inclusive education policies, practices and resources (DoE publishing as DET, 2017).

Scope and Delimitations of the Research

To explore these focus areas, I will examine the O&M learning of three primary school–aged students from North and Far North Queensland DoE over one school semester (two terms). I will interview one student's parent and one student's class teacher to better understand their perceptions of O&M. I will also implement deep personal reflection and engage a panel of O&M specialists in individual professional dialogues between myself and each panel member about O&M lessons, practices, and beliefs.

Research methodology and research approaches.

I will explore the two focus areas by shifting away from the dominant positivist paradigms of traditional and technical O&M research (Costley, Elliott, & Gibbs, 2010). This dominance will be explored in detail in the survey of the literature (see Chapter 3). In my research, I employ

the qualitative and interpretive research approaches of autoethnography and narrative inquiry. These approaches provide greater opportunities to more authentically understand the social reality of being a student with VI while learning O&M. Autoethnography is derived from the entomology of the three root words: auto (self), ethnos (culture) and graphy (write) (Ellis & Bochner, 2006). Autoethnography will enable me to gain O&M-related insights of my professional and personal selves from within the cultures of inclusive education and VI. In addition, I will engage narrative inquiry to challenge the conventional ways of telling the story of O&M learning and teaching, and will apply a conceptual framework that is bounded by Bronfenbrenner and Morris's (2006) bioecological theory of human development to generate connections to broader social constructs.

Autoethnography and narrative inquiry will be underpinned by hermeneutic phenomenology (Foran, & Olson, 2012). Hermeneutic phenomenology is based on the assumption that the reader does not exist outside a conventional network of interpretive strategies and norms. As Hutchinson (1985, p. 864) explained, "both text and reader are always and already situated within a social milieu". Thus, hermeneutic phenomenology will provide a greater opportunity for critical reflection within my two qualitative research approaches. It will also help to re-focus the research on more clearly identifying the subjective experiences of the students.

Research suggests that students with VI in predominantly sighted classrooms have fewer opportunities to learn in authentic ways that match their learning propensities. Through the narrative of individual lived experience, and shared experience of O&M and VI, I hope to be able to develop a deeper understanding of the subculture of O&M to shed light on potential authentic learning experiences for students with VI. I draw on Hannigan's (2014, p. 4) interpretation of Heidegger's hermeneutic philosophy in that "people have a shared belonging to the world although each person's unique background has a bearing on how he or she individually understands the world and him or herself in it". Hermeneutic phenomenology will enable me to position myself as actor, researcher and participant, and

enmesh myself in the constant oscillating of part-to-whole and whole-to-part interpretation of O&M learning and teaching.

Importance of this Research

Better understanding of the alignment of O&M learning and teaching with the Australian Curriculum and better understanding the pedagogy of O&M in Queensland state schooling is important for the O&M profession and for the learning and teaching of O&M for students with VI. Foregrounding this research is the Queensland call for: further investigation into evidence-based inclusive practices for students with a disability; increased attention on schools to be aligning best practice with national and international policies and legislation; and the prevalence of students with a disability attending mainstream settings (DoE publishing as DET, 2017).

A range of international declarations "create a legal imperative for education providers to deliver the best possible education for students with disability, within an inclusive environment" (DoE publishing as DET, 2017, p. 30). Many of the Australian and subsequently Queensland policies relating to students with a disability are sourced from legal cases in the US (DoE publishing as DET, 2017). However, all Queensland state schools are required to adhere to three main acts. They are the: *Education (General Provisions) Act 2006* (State of Queensland, 2018), *Anti-Discrimination Act 1991* (State of Queensland, 2018b) and *Disability Services Act 2006 (The State of Queensland, 2018).* Together, these three acts echo national legislation and the Melbourne Declaration on Educational Goals for Young Australians (Ministerial Council on Education Employment Training and Youth Affairs [MCEETYA], 2008), and seek to enable students with a disability to access maximised opportunities in education, as is the case for other students (DoE publishing as DET, 2017). In Australia, one in every five students has a disability, with 77% of these students attending a state school (DoE publishing as DET, 2017). In Queensland, 33% of students with a disability are supported through special classes in mainstream settings (DoE publishing as DET, 2017).

VI is classified as a low-incidence disability. However, there are approximately 19 million children with VI worldwide (World Health Organisation [WHO], 2017), with around 1.4 million of these children requiring access to services to optimise visual functioning. Although there has been a lack of reliable studies on the prevalence of VI (Douglas et al., 2009), a significant number of students with VI are considered to have additional disabilities (American Foundation for the Blind [AFB], 2015a). There are "81 million students in the USA; 37.9 million students in the government and non-government primary school, 26.1 million in the government and non-government secondary schools" (Informory.com, 2018, para. 1). According to the American Foundation for the Blind [AFB] (2015a), approximately 61,739 of American children with VI in educational settings (kindergarten, primary and secondary schools) are legally blind. In the United Kingdom, the figure has been recorded as 1.6 students with VI for every 1,000 students (Douglas et al., 2009). In Australia, approximately 3% of five- to 12-year-olds and 2% of 13- to 17-year-olds are recorded as having a sensory loss in either vision or hearing (Australian Bureau of Statistics [ABS], 2014).

The number of students in Queensland state schools, specifically government public primary and secondary schools, with a verified VI is low. The Queensland Deloitte disability review however, recorded an average annual increase of 3% of students with VI attending Queensland state schools (DoE publishing as DET, 2017). The Queensland Government Statistician's Office (The State of Queensland, 2019) records indicate the total number of students in Queensland Government primary and secondary schools as 550,000. Using the current figures from the Queensland Government Statistician's Office, and the identified percentage of students with VI (DoE publishing as DET, 2017) there may be approximately 4,000 students with a VI in the Queensland state schooling system. The population of children who receive O&M in Australia is only a small subset within this low-incidence population. As Anderson (2011) suggested, in the USA less than 50% of students with VI receive O&M instruction at some point in their life; the remainder are considered to have sufficient vision to not require O&M. Thus, approximately 2,000 students in Queensland are in receipt of O&M learning and teaching. The current research specifically focuses the O&M

learning and teaching for students with VI, and as such is significant for the 2,000 students in receipt of O&M in Queensland, and potentially for all students with disabilities and for whole-class inclusive learning and teaching practices.

A review of the literature suggests there have been no previous studies specifically addressing the O&M learning and teaching pedagogies involved in supporting learning outcomes for students with VI. It is anticipated that the insights and understanding acquired from this study will offer an original contribution to the knowledge base of the emerging field of O&M and learning outcomes for students with VI. The new understandings gleaned from this research may even contribute to broader pedagogical knowledge to support all students with disabilities and inclusive classroom pedagogies.

Key Definitions and Terms

Numerous systematic, cultural and personal layers influence the way that O&M learning and teaching is defined within the Queensland DoE. These layers comprise disability, blindness, VI, O&M learning and teaching, O&M specialists and the Australian Curriculum. A precis of these definitions follows.

Disability.

The (WHO, 2011, p. 7) defined disability as an "umbrella term covering impairments, activity limitations and participation restrictions".

Blindness.

The absence or loss of visual ability or perception of visual stimulus (WHO, 2014).

Vision impairment (VI).

Throughout this thesis, I use the term "vision impairment" (VI). This term encompasses blindness, partial sight, and low vision. VI refers to a medical or clinical diagnosis that describes the loss of organ function or the degree of available vision. Functional vision indicates the way a person uses his or her vision, and describes the person's visual behaviours or changes in visual behaviours.

Historically, medical and social models of disability have dominated the field of O&M and VI, with O&M learning and teaching frequently referenced as intervention (Scott, 2015)

and rehabilitation (WHO, 2017). Traditionally, social models of disability focused on the social initiatives and interventions necessary to resolve the disability (Barnes & Mercer, 1997). Meanwhile, the medical models of disability focused primarily on normality as a construct of clinical and rehabilitative initiatives and contexts, such as interventions (Linton, 1998). In the clinical and medical models of VI, emphasis is given to the person's visual diagnosis, the font size seen (near acuity) and the accuracy of distance vision (distance acuity) in relation to how much correction to normal vision is required (Hall-Lueck, 2004). According to Smith-Chandler and Swart (2014), medical models fail to acknowledge the role the social world plays in producing disability. In this interpretive research, I consider disability a dimension of human difference, not a deficit (Creswell, 2013) (see Chapter 4) and move away from traditional and clinical models of O&M (see Chapter 3). Therefore, in line with these contemporary theories, I specifically reference levels of VI only as expressions of ability or aptitude from the perspective of the person with VI.

Orientation and mobility (O&M).

O&M describes a blend of a traditional and developmental disability-specific erudition that focuses on "spatial concepts and skills, perceptual skills, environmental knowledge, sensory development, motor development, formal mobility skills, decision-making, and interpersonal skills" (Cmar et al., 2015, p. 3).

The Australian Curriculum.

The Australian Curriculum is a "progression of learning from Foundation–Year 10 that makes clear to teachers, parents, students and others in the wider community what is to be taught, and the quality of learning expected of young people as they progress through school" (Australian Curriculum Assessment and Reporting Authority [ACARA], 2017a, para, 2).

Outline of the Remainder of the Thesis

Thus far, I have described my research plan and provided the general background and context for my research. In Chapter 2, I introduce the overarching conceptual framework for this research. I explain how Bronfenbrenner's ecological model of development frames the learning of students with VI and goes some way to identify the variation in student outcomes. I then explore the literature surrounding the notions and beliefs identified in a conceptual framework of O&M learning and teaching. This is followed in Chapter 3 by a critical investigation into the current paradigm framing O&M research. I undertake this through analysis of the literature in terms of research design, category, epistemology, and timeframe. I examine the current literature on O&M learning and teaching, and particularly the literature on aligning O&M with curricula. In the subsequent section, I consider the cumulative knowledge gaps in the field of O&M. Chapter 3 highlights the existence of a dominant paradigm and consequently a pervasive and possibly limiting worldview of O&M learning and teaching. I argue that one concerning outcome of this dominant paradigm is the subsequent dearth of literature on both Australian O&M learning and teaching and the association of O&M with curricula. I also highlight the difficulties of research in areas of low incidence and heterogeneity, as in the population of students with VI.

Chapter 4 outlines my chosen interpretive research approach and introduces my research methods. I discuss the purpose of narrative inquiry and autoethnography, and consider the historical models of disability research and the use of vignettes in this research. I introduce my method; describe the inherent difficulties as an insider researcher; and outline the participant selection and recruitment, ethical approval, confidentiality, and consent. I outline my data collection, analysis, and representation, and describe how I address bias, validity, and triangulation within the thematic, discourse, and reflective analysis process.

I present the results over four chapters (Chapters 5, 6, 7, and 8) through a series of autoethnographic vignettes, thick descriptions, lesson plans, field documents, and reflections. In Chapter 5, with reference to the Bronfenbrenner and Morris (2006) bioecological model of development and the macrosystem, I present and discuss the results

on the broad cultures of VI, O&M, and education. I then specifically present the data for understanding the alignment of O&M learning and teaching with the Australian Curriculum. I employ vignettes to illustrate the alignment of the O&M lessons with the elaborations of the Australian Curriculum. Then, from a discrete analysis of the lesson interactions, I present the results on the research focus area to better understand the practice of O&M learning and teaching.

In Chapter 9, I provide an overall synthesis of all the results. In line with hermeneutic phenomenology, I revisit my conceptual framework from Chapter 2 and reconfigure it as a placemat for learning and teaching interactions for students with VI. I reflect on the new meanings and understandings of O&M learning and teaching in the light of theory, experiential practice, and my research findings. I highlight the strengths and limitations of this research, and consider recommendations for future research. I conclude the thesis in Chapter 9 by considering the implications of this research for future O&M learning and teaching practices.

Chapter 2: Conceptual Framework

As stated in Chapter 1, the Australian government has acknowledged the disparity in teaching practices in Australian school systems and called for research into ways to address this inequality (MCEETYA, 2008). As a result, the 2017 Queensland Deloitte disability review found that, despite the majority of students with a disability now being included in regular schooling, there remains considerable discrepancy in learning outcomes for students with and without disabilities. The review concluded that, on average, students with a disability systematically underperform academically. Further, a particularly challenging finding was that up to half of the variation in outcomes could be addressed by ensuring that universally accepted educational practices be more consistently adopted. This finding applies to all disability types, including the education of students with VI—the focus of this study.

Recent Australian and international studies (DoE publishing as DET, 2017; AFB, 2015b) indicated a substantial gap between the learning outcomes for students with VI and their sighted peers, which extends into post-school employment. Given that vision profoundly influences learning and development (Pasqualotto & Proulx, 2012) students with VI have unique learning challenges. Students with VI must develop appropriate alternative learning strategies that match their non-visual learning needs. These alternative learning strategies may involve greater concrete, tactile, and manipulative experiences, paired with explicit language (Wiener et al., 2010).

In keeping with the recommendations from the Queensland Deloitte review (DoE publishing as DET, 2017), the rationale for this research study is to investigate the universally accepted practices for students with disabilities, particularly those that relate to students with VI. O&M is universally accepted as a specialist form of learning and teaching, and is designed to cater to the specific learning needs of students with VI (Wiener et al., 2010). Thus, my research is designed to provide a better understanding of O&M learning and teaching, and of the alignment of O&M with the Australian Curriculum. A more deliberate alignment of O&M learning and teaching with school curricula may increase the

effectiveness of all interconnecting school curricular activities, and thereby improve overall learning outcomes for students with VI.

This research focuses on two areas: (i) to better understand the practice of O&M for primary school students with VI, and (ii) to better understand the alignment of O&M learning and teaching with the Australian Curriculum. These two focus areas are explored through using the qualitative research approaches of autoethnography and narrative inquiry, with both underpinned by hermeneutic phenomenology. These approaches were chosen in the hope that I may develop a deeper understanding of the O&M subculture, and subsequently be more able to share this subculture with classroom practitioners. The actual research involves close examination of the O&M learning and teaching of three primary school–aged students with VI, over a six-month period, with the data analysed and checked with a panel of expert O&M specialists.

I begin my preparation for this research pursuit with a description of my conceptual framework. Given that I intend to reflexively address concepts pertinent to O&M learning and teaching, I decided to locate my conceptual framework here in Chapter 2, before the survey of the literature (Chapter 3). The graphic representation of the conceptual framework (see Figure 2.1) is followed by an exposition, which expands on the framework. The exposition begins with a description of Bronfenbrenner's (1979) theory and is expanded to Bronfenbrenner and Ceci's (1994) bioecological model of development to incorporate the relationship with O&M learning and teaching. The discussion then explores Bronfenbrenner and Morris's (2006) idea of chronoception. This is followed by a discussion of the subsumer notions that are specific to interactions for students with VI within the O&M learning and teaching context.

Conceptual Framework

Conceptual frameworks presented in narrative and/or graphic form indicate the beliefs, observations, hunches, personal interests, assumptions, theories, and concepts that support and inform the research (Antonenko, 2014; Huberman & Miles, 2002). Linked to interpretivism and qualitative research, conceptual frameworks are especially employed in research involving deep understanding and description of human activity (Botha, 1989). For many qualitative researchers, conceptual frameworks represent the links and alignment between relevant concepts and theory-based propositions (Botha, 1989; Hepworth, 2004; Ravitch & Riggan, 2017). Conceptual frameworks also help in developing the narrative because they are used to organise relevant information in more logical and subsequently transparent ways. In my conceptual framework, I specifically employ the tenets of qualitative research. Antonenko (2014) likened conceptual frameworks to maps connecting:

> Points of departure on the quest for research (i.e., the problem) and the potential destination or solution to the problem—with all the stops throughout the journey (i.e., key concepts, research questions, data collection and analysis methods, and data interpretation strategies (p. 57).

In the case of quantitative research, the conceptual framework tends to be positioned after the literature review, yet before the methodology chapter (Datt, 2015). In qualitative research, an inductive position is applicable “wherein the researcher seeks to build up theory and the conceptual framework generally emerges after the research is complete”, so the conceptual framework tends to be located after the analysis and results chapter (Datt, 2015, para, 2). However, in ethnography and autoethnography, an exception occurs because of the need for reflexivity; thus, the conceptual framework is positioned as early as possible. According to Nightingale and Cromby (1999, p. 228), ethnographic reflexivity refers to exploration of how the “researcher’s involvement with a particular study influences, acts upon and informs such research”. Ethnographic reflexivity denotes the “circular bidirectional relationships between cause and effect thereby complicating the three chief components of scientific or quantitative research specifically prediction, control, and explanation” (P.

Pagliano, 2018, personal communication, June 15, 2018). Placing the conceptual framework before the literature review is helpful because it can inform decisions regarding pertinent literature, in addition to foreshadowing the data collection and analysis.

My conceptual framework (see Figure 2.1) is designed to display the foreshadowed subsumer notions relevant to researching O&M learning and teaching. The conceptual framework in graphic form, from left to right, highlights the pertinent theories, such as Bronfenbrenner and Ceci's (1994) bioecological model of development and general categories—in other words, the subsumer notions that support and inform this research. Subsumption was discussed by Ivie (1998, p. 37) as "new meaningful material" that is incorporated into cognitive structures under "relevant existing concepts". The subsumer concepts (Ivie, 1998) that help organise thinking about O&M learning and teaching for students with VI consider inclusive education, the Australian Curriculum, classroom pedagogy, student interactions with space and text, and student self-determination.

The entire conceptual framework is represented graphically in Figure 2.1. The two research focus areas are represented as: (i) RF1: to better understand O&M learning and teaching, and (ii) RF2: to better understand the alignment of O&M with the Australian Curriculum. Each oval signifies a relevant idea pertinent to O&M learning and teaching. The solid directional arrows indicate relationships between concepts, and the shaded boxes delineate clusters of concepts. The clusters of concepts in dashed outlined boxes represent the emerging theories, while the dashed lines with directional arrows indicate the relationships under investigation. The dashed lines with directional arrows signify that the relationship between O&M, self-determination, the Australian Curriculum, and social change are all emerging investigations.

Figure 2.1. Conceptual Framework for the Research

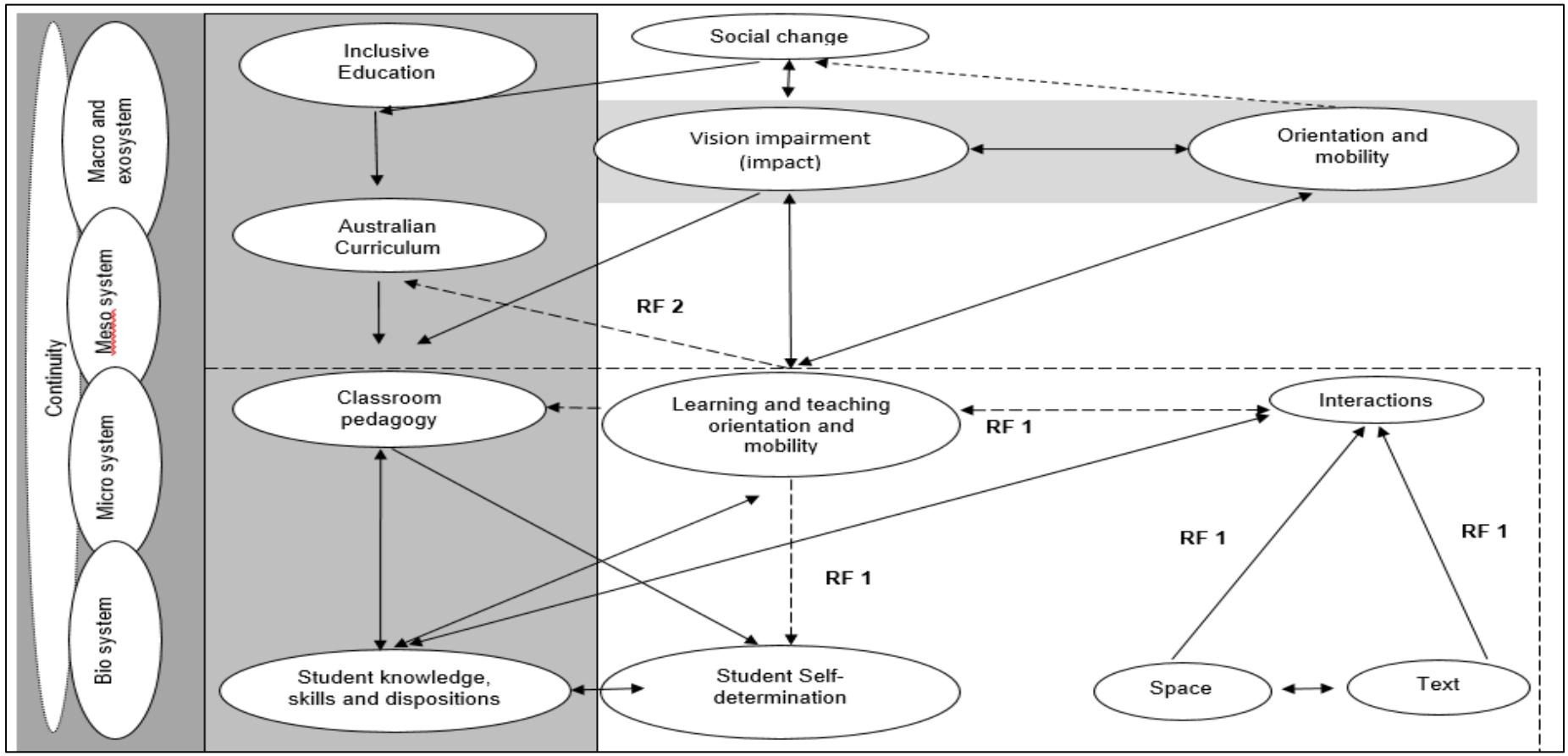


Figure 2.1. Concept map depicting the personal interests, theories, and concepts that support and inform this research. Each oval represents a subsumer notion to assist thinking about O&M learning and teaching. Solid directional arrows indicate relationships between subsumer notions, while boxes delineate conceptual clusters embedded within accepted theoretical models. Conceptual clusters in dashed line boxes represent emerging theories. Dashed directional arrows show proposed relationships under investigation. RF1 and RF2 highlight the research focus areas. A further subsumer notion is the idea of a dominant discourse surrounding O&M learning and teaching (see Chapter 3).

Bronfenbrenner's Bioecological Model of Development

Theories in conceptual frameworks help the researcher to judge what is occurring and explain why something works, so that it can be repeated (Lankshear & Knobel, 2004). According to educational researchers Lankshear and Knobel (2004, p. 14), "theory gives shape, meaning and form to what goes on in the world of teaching". Therefore, existing theories form the basis of my conceptual framework (Ravitch & Riggan, 2017).

Several existing learning and development theoretical models were available around which to frame my research. Theoretical matrices—such as Piaget's stages of development (Piaget, 1999), Vygotsky's zone of proximal development (Vygotsky, 1994) and Bruner's cognitive and constructive learning (McLeod, 2008)—may be considered important developmental theories underpinning O&M learning and teaching. However, given that O&M learning and teaching is such a complex network of systems, cultures, and practices that facilitates students with VI to be efficient and independent travellers, I felt that a more sophisticated model was warranted. In my opinion, O&M learning and teaching is most closely represented by Bronfenbrenner and Ceci's (1994) bioecological model of human development.

Through combining the alternative theories of development posed by Piaget and Vygotsky, Bronfenbrenner (1979, p. 27) proposed that "development never takes place in a vacuum; it is always embedded and expressed through behaviour in a particular environmental context". Bronfenbrenner's proposal of behaviour as a consequence of environmental context is particularly relevant when considering the influence of VI on childhood development. As Ferrell (2011) stated, children with VI grow and develop according to the values and expectations of their parents in the context of their daily environment. According to Ferrell, learning does not necessarily occur incidentally for young children with VI. Therefore, to understand the world, young children with VI require opportunities across multiple environments using their other senses to interpret concepts, events and relationships (Ferrell, 2011).

Bronfenbrenner's bioecological model of development (Bronfenbrenner & Ceci, 1994) is an expansion and revision of Bronfenbrenner's (1979) ecological framework for human development. The original model of human development provided a "theoretical conception of the environment extending beyond the behaviour of individuals to encompass functional systems both within and between settings" (Bronfenbrenner (1979, p. 7). The revised model (Bronfenbrenner & Ceci, 1994) recognises a major factor in human development to be the interdependency between the six broad systems. The six systems are as follows: the macrosystem, exosystem, mesosystem, microsystem, biosystem (Bronfenbrenner & Ceci, 1994) and chronosystem (Bronfenbrenner & Morris, 2006). Traditionally, these six systems are examined from the smallest (biosystem) to largest (macrosystem). However, I have chosen to appropriate the largest-to-smallest method of system examination, as employed by McLinden et al. (2016) and Khochen (2016). I undertake this in an attempt to better understand how inclusive education and most importantly, O&M learning and teaching are socially constructed by the larger systems for students with VI.

The macrosystem.

The macrosystem is the largest system in the bioecological model of human development. The macrosystem includes the national and international cultures, subcultures, beliefs, and ideologies that surround learning and development. For Bronfenbrenner (1979), the macrosystem refers to consistencies between larger cultures and the contrasting intra-societal ecologies. Bronfenbrenner (1979) argued that the "blueprints differ for various socioeconomic, ethnic, religious, and other subcultural groups, reflecting contrasting belief systems and lifestyles, which in turn help to perpetuate the ecological environments specific to each group" (p. 26). According to Khochen (2016), the cultural, legislative, value and attitudinal variables evident in the macrosystem influence inclusive practices, and subsequently directly or indirectly influence the development of students with VI. Likewise, for McLinden et al. (2016, p. 188), the macrosystem encapsulates the "broader rights issues" and students' active engagement in "decisions about their future".

The macrosystem variables for O&M learning and teaching similarly include contemporary, historical and cultural attitudes, and discourses of various communities and institutions. Specifically, these variables include students' rights and regulations, the perceptions of people with VI, and awareness of O&M by sighted others (see Chapter 1). The macrosystem variables for O&M learning and teaching also include global inclusive education practices and agendas (see the subsumer notion section in this chapter).

The exosystem.

The exosystem is "one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person" (Bronfenbrenner, 1979, p. 25). Thus, the exosystem is conceptualised as outside the learners' "direct agency" (McLinden et al., 2016, p. 188). For example, Khochen (2016) and McLinden et al. (2016) claimed that interactions and events in the exosystem for students with VI can refer to curriculum policies, regulatory bodies, social policies, inclusive-related advocacy, budget allocations, school leadership structures, and resource allocation. Khochen specifically addressed the exosystem in an investigation of the "decisions or agreements occurring between educational agencies" (p. 39). More specifically, McLinden et al. stated that the central issues affecting students with VI in the exosystem are "awareness raising within the educational settings of potential barriers to curriculum access" and "curriculum policy and development" (2016, p. 191).

Therefore, the exosystem consists of influences or events that subsequently affect the microsystem, yet occur in settings that do not include its members. For Queensland DoE O&M learning and teaching, the exosystem variables include the Australian Curriculum, the ECC or additional curricula, school cultures, and resource allocation (including both physical and personnel resources). The complex nuances of Australian Curriculum development and reform is evidence of the continual effect of broader ecological systems on learning for students with VI. The Australian Curriculum general capabilities and the disability-specific ECC (see subsumer notions in this chapter) further illuminate the effect of the exosystem on O&M learning and teaching.

The mesosystem.

The mesosystem was identified by Bronfenbrenner (1979, p. 25) as a system of microsystems "formed or developed whenever a person moves into a new setting". Bronfenbrenner identified that the mesosystem exemplifies the dynamic relationships and connections between the "various settings in which the developing person actively participates (such as, for a child, the relations among home, school, and neighbourhood peer group; for an adult, among family, work, and social life)" (p. 25). Thus, the mesosystem includes the interactions of parents with teachers, teachers with school leaders, and other stakeholders in programs for students with VI, including various departmental advisory teachers and non-school service providers and agencies.

In a recent Lebanese study, Khochen (2016) addressed the mesosystem through investigating the interactions of parents with teachers, and teachers with school leaders, and their influence on inclusive education for students with VI. Khochen specifically explored the factors that affect the views and expectations of parents and teachers, and the subsequent influence on the perceptions of the students and their peers. Likewise, information relating to O&M learning and teaching, and the accommodations that school leaders make available to parents and students can influence the expectations, knowledge and implementation of O&M learning and teaching.

The microsystem.

The microsystem was conceptualised by Bronfenbrenner (1979, p. 22) as "a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics". Bronfenbrenner discerned that, in the microsystem, interactions include those between teacher and student and, more importantly, between students and their environment. For students with VI, McLinden et al. (2016) suggested that the microsystem includes curriculum resources; learning activities; interactions with parents and family, teachers, paraprofessionals, peers, and other learners; physical and virtual learning spaces; access to resources; and the social and cultural aspects of the home, classroom, playground, and school routines. Therefore, the

microsystem influences the ability of the student with VI to attend to, gather and interpret information, and subsequently to navigate contextual spaces, objects, symbols, and sociocultural environments.

The microsystem is the immediate environment "within which direct manipulation and face-to-face communication are possible" (Bronfenbrenner, 2005, p. 75). Thus, an important feature of the microsystem is the overarching teacher pedagogy, and the subsequent interactions between teachers and students, and students and their environment. The microsystem reflects these teacher and student interactions and student needs, knowledge and dispositions, and the effect they have on student development.

The biosystem.

The central system of the bioecological model is the biosystem, which specifically refers to the individual learner. According to McLinden et al. (2016, p. 185, original italics), positioning the learner at the core of the framework "serves to emphasise the importance of recognising the needs of the *individual* learners and in particular their role as being *"active"* participants in the learning process and how they can influence the environment". The bioecological model emphasises the contribution to an individual's development through the interaction between child and events, and between child and objects, symbols, and features of the environment (Bronfenbrenner, 2005). For students with VI, their interactions with people, spaces, objects, and environmental texts is central to their developing self-identity (Nielsen, 1990).

Bronfenbrenner (2005) identified five processes required within an interaction for effective development to occur, and labelled these "processual interactions". The five processes are: (i) engagement of the student; (ii) regular occurrence of the activity over an extended period; (iii) opportunity for the activity to become increasingly complex; (iv) reciprocal exchanges and interactions; and (v) interactions in the immediate environment with objects and symbols that "invite attention, exploration, manipulation, elaboration and imagination" (Bronfenbrenner & Morris, 2006, p. 798). However, the interactive processes

are also dependent on the characteristics of the person, the remote environmental contexts and the periods in which the activity occurs (Bronfenbrenner & Morris, 2006).

In addition to the five processes, Bronfenbrenner and Morris (2006) proposed three biophysical or personal characteristics that are influential in processual interactions. The individual's biophysical characteristics either invite or discourage interactions within the social environment, and were referred to by Bronfenbrenner and Morris as students' dispositions, attributes (ability, experience, knowledge and skill) and temperaments. For the student with VI, biophysical qualities may include the ability, experience, and aptitude to gather, interpret, and navigate social, cultural, spatial, and environmental texts and space across and within each of the broader systems. Better understanding the conditions that invite or discourage students with VI to interact with their environment is relevant because, as Ferrell (2011) highlighted, information from the senses gleaned by students with VI is different from that acquired by their sighted peers. Thus, the "form, content and power and direction" (Bronfenbrenner & Morris, 2006, p. 796) of the interactions for students with VI may be distorted. This is because, for the student with VI, environmental information is often passively received, rather than actively received, and is discrete, intermittent, inconsistent, fragmented, and unverifiable (Ferrell, 2011).

Ontogenetic development underpins the biophysical qualities of a student with VI, and the subsequent processual interactions. Ontogenetic development refers to individual development that occurs as a function of experience, rather than as a function of genetic makeup (Lambert & Johnson, 2011). Ontogenetic development is the portion of physical, cognitive, emotional, and social development attributed to experiences with and within the learning environment. In other words, learning environments that are constructed with intentionality and that purposefully engage students with VI in meaningful activities over their lifetime may serve as ontogenetic sources of development (Lambert & Johnson, 2011). O&M learning and teaching is one such environment.

The chronosystem.

The final and overarching system in Bronfenbrenner and Morris's bioecological model of development is the chronosystem. The chronosystem signifies the dimension of time. Through the chronosystem, the bioecological model considers the ideas of constancy and change. Specifically, the chronosystem channels the broader understanding of behaviour and development towards an awareness of individuals' perceptions of their environment and reciprocal interactions with the environment over time (Bronfenbrenner & Morris, 2006). According to Bronfenbrenner and Morris (2006), the personal qualities of all those who participate in the life of a student regularly and over extended periods further influence the student's knowledge, skills, and dispositions to interact with others and the environment.

The idea of social change over time and within systems is embedded in Bronfenbrenner and Morris's (2006) bioecological model of development. For instance, microtime refers to "continuity versus discontinuity" in ongoing processual episodes Bronfenbrenner and Morris (2006, p. 796). Further, mesotime was identified by Bronfenbrenner and Morris as the "periodicity of these episodes across broader time intervals such as days and weeks" (p. 796), while macrotime was identified as changing expectations and events in the larger society. In regard to the student with VI, microtime may include the multiple or alternatively lack of multiple opportunities throughout the day that address the effect of VI on development, learning, and self-referent behaviours. In contrast, mesotime and macrotime may refer to the ongoing application of inclusive education practices, social change (Astin & Astin, 2000) and the cultures affecting the lifelong outcomes for people with VI.

The concept of constancy and change over time—in other words, the chronosystem—is an important consideration in O&M learning and teaching. This is because an O&M specialist may work closely with a student with VI for many years, and consequently has great opportunity to affect the student's desires and skills to interact with his or her environment. As Pagliano (1999, p. 67) proposed, for students with VI, "an understanding of personal identity, the ability to self-determine one's own future, is formed through the

ongoing active interaction with one's environment over an extended period of time". Personally, I have met several students with whom the O&M learning and teaching relationship has continued over decades—a very long time indeed—and my participation in the lives of these students has potentially influenced the students' ongoing interactions. Extensive O&M interaction over long periods of a student's life was further identified by McLinden et al. (2016, p. 190), who stated that the specialist VI teacher potentially supports a student with VI "across their compulsory and post-compulsory educational pathway".

O&M learning and teaching inherently involves interactions between students, their environment, and wider cultural settings. The way that students with VI perceive and interact with their environment ultimately affects their interactions with the environment over time, and subsequently influences their lifelong learning outcomes. O&M learning and teaching (Chapter 1) is one mode of learning that provides multiple opportunities for students with VI to interpret and decode the world from a non-visual perspective. As such, Bronfenbrenner and Morris's bioecological model of development provides an opportunity to consider the learning and development of students with VI across and within a range of O&M interactions.

Subsumer Notions of O&M Learning and Teaching

The aim of this research was developed in response to a growing awareness of and concern for the disparity between the learning outcomes and post-school options of students with and without disabilities (DoE, publishing as DET, 2017), particularly students with VI (Lee et al., 2014). To help redress this imbalance, the Queensland Deloitte disability review (DoE publishing as DET, 2017) included the recommendation that research be conducted into viable learning and teaching practices for students with disabilities. The practice of O&M learning and teaching is one such practical approach being used with students with VI. This is because O&M learning and teaching facilitates students with VI to develop alternative non-visual exploration and learning strategies. Therefore, the aim of this research was to gain a better understanding of how O&M may facilitate the academic and classroom learning and teaching of students with VI, and align this understanding with the Australian Curriculum.

In the previous section, I introduced my conceptual framework (see Figure 2.1) for this research, purposefully positioning the conceptual framework prior to the literature review. I positioned the conceptual framework prior to the literature review in an attempt to foreshadow notions relevant to the literature review, and to aid transparency in data collection and analysis. A major component of the conceptual framework is the underlying theoretical model. Thus, in the previous section, I presented Bronfenbrenner and Morris's bioecological model of development as the underpinning theoretical model for this research, and discussed how Bronfenbrenner's six ecological systems provide a lens to view the effect of VI on students' development. In the bioecological model of human development, Bronfenbrenner and Morris (2006) identified the effect of environment and biology on an individual's development. As such, framing O&M research with Bronfenbrenner and Morris's (2006) bioecological model of human development enables description and explanation of changes in human action within and across the O&M context. Bronfenbrenner and Morris's bioecological model of human development provides the foundation to recognise and be aware of the interactions and environments that are pivotal to O&M learning and teaching, and integral to learning for students with VI. Without the bioecological model of development as a theoretical model for this research study, the cultural and tacit understandings of O&M learning and teaching may be missed (Botha, 1989).

The influence of VI on development (see Chapter 1) underpins the consideration of O&M as an integral part of the overall learning of students with VI (Hatlen, 2006). Further, awareness of the influence of VI on development is pertinent to gaining a better understanding of O&M learning and teaching as a feasible approach towards achieving equitable learning outcomes for students with VI. Therefore, the synthesis of the influence of VI on development forms the underlying narrative to this research. As Sandelowski (1991, p. 163) argued, narration "constitutes a causal thinking in efforts to explore human agency and explain lives". According to Sandelowski (1991), narrative research can be categorised as descriptive and explanatory. However, any description or explanation of O&M learning and teaching involves understanding and awareness of the past, present, and future elements of

the social milieu (Hutchinson, 1985) that surrounds VI and O&M. Moreover, to better understand the influence of VI, and subsequently the tenets of O&M learning and teaching, it is necessary to challenge the conventional way of telling the story of O&M (see Chapter 3). Sandelowski (1991, p. 162) claimed that narration "captures a narrator's interpretation of elements of the past, present and future". Through narrative, my past, present, and future experiences with O&M learning and teaching, and the experiences with O&M of the research participants, may be both shared and storied (Sandelowski, 1991).

I employ "subsumer notions" to help synthesise the research narrative about better understanding the influence of VI on development, and subsequently better understanding O&M learning and teaching. Therefore, subsumer notions are liminal to the research narrative. Subsumer notions are variously referred to in narratives as points of departure (Antonenko, 2014), personal interests (Ravitch & Riggan, 2017) or historical and sociocultural constraints (Sandelowski, 1991). For the purposes of my research, I use the term "subsumer notions" to identify the general categories with which the abstract and unique practice of O&M learning and teaching may be cognitively categorised within existing concepts of education. Therefore, in my research, the subsumer notions are the intellectual linchpins, anchoring posts (Ivie, 1998) or "advanced organisers" (Ausebel, 1960, p. 267; Ausebel, 1978, p. 251) for the later data interpretation and analysis.

I provide an overview of the subsumer notions depicted in the conceptual framework (see Figure 2.1). I commence at the top of the conceptual framework with inclusive education, and work downwards to detail current and historical Australian Curriculum perspectives, including international innovations, such as the ECC and Australian general capabilities. I then discuss learning and teaching pedagogies, particularly student and teacher interactions in the classroom and pedagogies specific to O&M learning and teaching. I consider the non-visual perspective of a text, strategies for processing a non-visual text, and the notion of space versus place for students with VI. I provide a brief synopsis of the current literature on each of the subsumer notions, acknowledging each of these areas as an area of research in themselves.

Inclusive education.

Educational reform in Australia in the 1970s included the roll out of integrated education practices (Konza, 2008). These political reforms, identified as inclusive education practices, emphasised education practices that typify respectful and dignified relationships that are free from discrimination, and are safe, supportive, and engaging for all. Inclusive practices for students with disabilities are identified in the *Commonwealth Disability Discrimination Act* (Australian Human Rights Commission, 2015a), Disability Standards for Education (DoE, publishing as DET, 2017b) and Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008).

The inclusion of students with disabilities in education within Australia has gradually became more far reaching and accepted over the decades (Forlin, 2006). However, although "there is strong support for the ideology of inclusion and political support for inclusive education, empirical evidence regarding the attitudes of teachers towards implementing such a policy is less convincing" (Forlin, 2006, p. 269). Although teachers philosophically agree with inclusive education, Kuhl, Pagliano, and Boon (2014) suggested that the practical application of inclusive education continues to be challenging for teachers. Many teachers remain less committed to inclusion at the grassroots level because of challenging pragmatic considerations, such as a perceived increase in the complexity of programming and a lack of human and material resources (Kuhl et al., 2014). Moreover, according to Scott (2015), available and ongoing funding for resources and support continues to affect service delivery for students with disabilities in the classroom.

The Queensland Deloitte review (DoE publishing as, DET, 2017) (see Chapter 1) concluded that, on average, Queensland students with a disability systematically underperform academically. In addition, empirical results from Australian researchers Kain et al. (2017) and American researchers Cmar (2015a) and Lee et al. (2014) highlighted that students with VI continue to underachieve in literacy, numeracy, self-determination, and employment, despite the mandated adoption of inclusive schooling.

The expanded core curriculum (ECC).

Towards the end of the twentieth and start of the twenty-first century, Australian and international governments and organisations ratified certain conventions that stipulated the rights of people with a disability, rights of the child, and standards for education (Australian Human Rights Commission, 2015b; United Nations Human Rights Office of the High Commission, 1975). The DoE (publising as DET, 2005, p. 2) specifically stated that "educators need to provide personalised learning that aims to fulfil the diverse capabilities of each student". Together, these acts acknowledged that the education of students with disabilities requires supplementary learning in addition to core curricula (Sapp & Hatlen, 2010). Supplementary instruction to the core curricula that addresses the unique and specialised capabilities of students with VI is identified as the ECC (Hatlen, 2006) or additional curriculum (Douglas et al., 2009; McLinden et al., 2016).

The ECC is expressed as indication of the breadth and depth of additional and targeted learning requirements for students with VI and incorporates nine proficiencies (Texas School for the Blind and Visually Impaired [TSBVI], 2018). The nine proficiencies of the ECC in no particular order, are as follows: O&M, sensory efficiency, social interaction, self-determination, assistive technology, leisure and recreation, career education, independent living skills, and compensatory and functional skills. Proficient skills include concept development, spatial understanding, organisational skills and speaking and listening skills (Dignan, 2016). The ECC is identified as essential disability-specific knowledge by the South Pacific Educators of Vision Impairment's [SEPVI's] (2016) professional standards for specialist teachers of students with VI. In addition, the DoE (publishing as DET, 2017a) explicitly addresses the ECC as part of students' Education Adjustment Profile. Sapp and Hatlen (2010, p. 347) claimed that "we are ethically responsible to give students the opportunity to gain skills in the ECC, so they have the opportunity to live up to their potential". According to Sapp and Hatlen (2010, p. 342), the development of ECC competencies for students with VI is the "difference between life and a successful life".

In contrast, McLinden et al. (2016) and Khochen (2016) argued that alignment and integration of these proficiencies into regular classroom practices is more advantageous to the overall development of students with VI. Khochen (2016) argued that exclusive and additional curricula for senior students with VI in inclusive education settings negatively influences social inclusion. Further, McLinden et al. (2016) argued that tension between the competing curricula, with distinctions between core and additional curricula, no longer aligns with contemporary models of inclusive education, and suggested the need for an overlapping and intertwining of core and additional curricula. McLinden et al. (2016, p. 181) labelled additional curricula for students with VI as "learning to access", and defined this as supporting students to learn distinctive skills to afford learning that is more independent. They described learning to access as providing students the means to access information independently, and argued that teaching students learning to access skills has longer-term benefits for students.

The Australian curriculum.

Australia's core academic curricula is recognised as "the Australian Curriculum" and understood as the national substantiation of Australia's educational priorities (Casinader, 2016). First implemented in 2010, the Australian Curriculum (DoE, publishing as DET, 2017a) sets the expectations for students to develop the knowledge, skills, and understanding to be able to contribute to a democratic, equitable, and just society. Drawn from the Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008), the Australian Curriculum identifies the goals for the education of young Australians as "equity and excellence", and "successful learners" who are "confident and creative individuals, and active and informed citizens" (MCEETYA, 2008, p. 3).

The impetus to formulate a national curriculum in Australia arose in the 1980s (Lingard & McGregor, 2014). The Australian national schooling reforms were implemented in response to Australia's international economic competitiveness, the Australian federal government presence in schooling as part of national social and economic policies, and the changing role of education in a globalising world (Lingard & McGregor, 2014; Peacock,

Lingard, & Sellar, 2015). A major impetus for Australian national school reform was the nation's performance on international academic tests in the early 2000s. Australia's decline in international ranking declared by the Organisation for Economic Co-operation and Development (OECD), and Program for International Student Assessment (PISA) (Organistion for Economic Cooperaton and Development [OECD], 2010) became an observable and quantifiable measure of strength of Australia's economic and social capacity (Lingard & McGregor, 2014; Peacock et al., 2015).

The "form and content of an educational curriculum is the practical expression of its social and political construction" (Jephcote & Davies, 2007, p. 12). The social and political construction of the Australian Curriculum was exemplified in Australia with the drive for national education reform, paralleled by the growth of Australian federalism. The government of Australian schools, the development of educational policies, and decisions about which level of government was best placed to govern education into the future created additional uncertainty and contestation in Australian national educational reform (Lingard & McGregor, 2014). The last decade of national developments in Australian schooling has been overseen by a statutory authority created by the federal government (Peacock et al., 2015), even though education remains the responsibility of state and territorial governments, rather than the national or commonwealth government (Casinader, 2016; Northam, 2014). Thus, based in Australian social, cultural, economic, and political perspectives from the last two decades, the Australian Curriculum represents a direct indication of the values and priorities of Australian society.

The Australian Curriculum (formerly known as the National Curriculum) was conceptualised with English, mathematics, history, and science learning areas, and endorsed in 2008 for implementation in late 2010 (Hart, 2014; Salter & Maxwell, 2016). By 2014, most states and territories had moved some way to implementing these first four learning areas (Salter & Maxwell, 2016). However, in 2014, the incumbent federal Liberal government commissioned a review and questioned core aspects of the national schooling reform agenda, including the Australian Curriculum (Salter & Maxwell, 2016). As a result of

this review, an updated version of the Australian Curriculum has since been developed and implemented in schools from 2017 (ACARA, 2017a); however, there remains “ongoing national debate in Australia about enhancing curriculum assessment and reporting for students with disabilities” (Garner & Forbes, 2015, p. 226).

The current Australian Curriculum comprises eight traditional disciplinary learning areas, seven general capabilities and three cross-curriculum priorities (see Table 2.1). The eight learning areas include English, mathematics, science, health and physical education, humanities and social sciences, arts, technologies, and languages. Each learning area is defined by a continuum of content descriptors and achievement standards that describe the “depth of understanding and the sophistication of knowledge and skill expected of students at the end of each year level or band of years in their schooling” (ACARA, 2017a, para. 3). The current achievement standards of the core Australian Curriculum, including those of the general capabilities, form the basis of the data collection and analysis in my research.

Table 2.1. Composition of the Australian Curriculum (ACARA, 2017a)

Learning Area	Subjects	General Capabilities	Cross-Curricula Priorities
English	English	Literacy Numeracy Personal and Social Capability Critical and Creative Thinking Ethical Understanding Intercultural Understanding Information and Communication Technology	Aboriginal and Torres Strait Islander Histories and Cultures Asia and Australia's Engagement with Asia Sustainability
Mathematics	Mathematics		
Science	Science		
Humanities and Social Sciences	History Geography Economics and Business Civics and Citizenships		
The Arts	Drama Dance Media Music Visual Arts		
Technologies	Design and Technologies Digital Technologies		
Health and Physical Education	Health and Physical Education		
Languages			
Work Studies			

My target research focus area—to better understand how O&M learning and teaching may be aligned with the Australian Curriculum—is particularly synonymous with the historical and political overtures surrounding the Australian Curriculum. Therefore, the relatively recent and fluctuating nature of the Australian Curriculum is an important consideration in the overall aims and focus of this research. Given that the Australian Curriculum continues to be

updated, individual schools and teachers are at different points on the continuum of implementation and awareness. Moreover, so little time has passed since the endorsement of the Australian Curriculum that extensive evaluation of the implementation is not yet available (Australian Government, 2014). However, in my experience, many schools are continuing to develop their own awareness of the ways in which the core curriculum—and particularly the general capabilities—may be explored for individual student learning needs. Overall, my research is unique because of its dual focus on O&M and the Australian Curriculum.

The General Capabilities.

The Australian Curriculum includes seven general capabilities (see Table 2.1). The elements of the general capabilities are literacy, numeracy, personal and social capability, critical and creative thinking, ethical understanding, intercultural understanding, and information and communication technology. These seven capabilities are addressed through the content of the learning areas, which, according to the Australian Curriculum Assessment and Reporting Authority (ACARA) (2017a, para.4), add "depth and richness" to student learning. For Hart (2014), the general capabilities provide teachers with alternative options to navigate the Australian Curriculum. Further, Lingard and McGregor (2014, p. 90) suggested that the general capabilities are the overt political and societal expressions of desired "skills and dispositions" for "global millennium citizens and workers". The general capabilities are mapped with the "knowledge, skills, behaviours and dispositions" according to developmental continua, and have interrelated elements across the learning continuum (ACARA, 2017b, para. 2). I attend to four general capabilities for the purposes of my research: literacy, numeracy, personal and social capability, and critical and creative thinking (see Table 2.2).

Table 2.2. The Australian Curriculum General Capabilities (ACARA, 2017a)

General Capabilities			
Literacy	**Numeracy**	**Personal and Social Awareness**	**Critical and creative thinking**
Comprehending text	Using measurement	Self-management	Inquiring
Composing texts	Recognising and using patterns	Self-awareness	Generating ideas
Text knowledge	Using spatial reasoning	Social management	Analysing, synthesising and evaluating
Grammar knowledge	Estimating and calculating with whole numbers	Social awareness	Reflecting on thinking and processes
Word knowledge	Using fractions, decimals, percentages, ratios and rates		
Visual knowledge	Interpreting statistical data		

There is a gap in the literature regarding the alignment of O&M learning and teaching with the general capabilities of literacy, numeracy, personal and social capability, and critical and creative thinking. This is significant because this gap identifies this research as unique, with the potential to generate new understandings of O&M practices. This research contests the paradigm of research within the O&M field and places weight on the significance of O&M for students with VI. Therefore, I employ ethnographic reflexivity in foreshadowing the general capabilities as the basis of the data collection and data analysis in this research (see Chapters 4 and 5).

According to Anderson, Stewart, and Abdul Aziz (2016, p. 385), ethnographic reflexivity is a shaping of “what and how we know”. These authors (Anderson, Stewart, & Adbul, 2016) explain that this shaping of knowledge is formed when a reflexive moment

becomes a site for analysis and a knowledge repository. In practicing reflexivity, I am more aware of the different types of discourse surrounding O&M and VI. Thus, my pursuit to better understand O&M learning and teaching arose, as Berry and Clair (2011) suggested, from both looking outwards and a critical reflexivity that looks inwards. Through reflexivity, I can better understand and communicate the discourse that surrounds O&M and VI—a discourse that is forever situated in dynamic cultural contexts. At the same time, I am acknowledging that the full story of O&M leaning and teaching is rarely, if ever, told. Through reflexivity and narrative, I am seeking not only to describe and illuminate, but also to help in some way transform the social constructions of O&M learning and teaching practices.

The subsumer notions liminal to the social construction of O&M, and to the narrative of O&M and VI, are specific to the interactions and contexts that facilitate and underpin O&M learning and teaching. These interactions are foreshadowed by the concepts of learning and teaching pedagogy, and the non-visual interpretation of space, text, and corresponding text-processing strategies.

Pedagogy.

The word “pedagogy” derives from the Greek word “*paidagogos*”, meaning “teacher of children”, and involves the “why”, “how” and “when” of teaching and learning (MacNeill & Silcox, 2003). According to the Queensland Government (2013), pedagogy also includes the philosophical values and beliefs about teaching and learning, the procedures of teaching (such as monitoring and assessing), the learning goals set for the teacher and student, and most importantly the essential practices and strategies for teaching. This was elaborated by Fisher (2014, p. 4), who stated that “we cannot expect students to know themselves or their world without essential teaching practices”.

The value of good teaching for student outcomes is well documented (Hattie & Yates, 2014; Masters, 2009; Rowe, 2006). The National Inquiry into the Teaching of Literacy (DoE publishing as, DET, 2005, p. 7) noted that “teachers are the most valuable resource available to schools” and that “highly effective teachers and their professional learning do make a difference in the classroom”. Similarly, research from the PISA (Pearson Foundation,

2013) identified variation between student performance and the quality of a school's human resources (teachers and school principals) as a key indicator of successful schools. The importance of skilled teachers was further supported by Fisher (2014, p. 1), who advocated that "the skills of the teacher and how the teacher uses valuable instructional time, matters".

The discourse around pedagogy and pedagogies has been an ongoing feature of Australian education reform. Over the last 20 years, Queensland has endorsed a number of evidence-based pedagogical practices (DoE publishing as DETE, 2014). Through guiding schools to develop context-specific pedagogical frameworks, the DoE (publishing as DETE, 2014, p. 34) outlined a set of principles that "capture the intent of the Australian Curriculum and, in its absence, the Queensland curriculum". The DoE (publishing as DETE, 2014, p. 29) claimed that these principles represent core systemic values and "offer teachers a framework for reflecting on their practice". For the DoE (publishing as DETE, 2014, p. 21), a "quality pedagogical framework encompasses a broad repertoire of research-informed practices that assist educators to make systematic and principled decisions that are likely to support improved learning in their diverse classroom and school contexts". However, according to the DoE (publishing as DETE, 2014, p. 4), there is no best strategy or method that "guarantees learning for every student in every learning context".

A number of pedagogical practices have been established as research-informed practices that assist educators to support learning for students with VI. When specifically addressing the practices and teaching strategies for young children with VI, Ferrell (2011) stressed the importance of repeated exposure with concrete objects and experiences, in alignment with consistent and expressive language, imitation, and turn taking, and facilitated through extended exploration, consolidation, and generalisation.

In 1979, Lili Nielsen (1990) presented an educational method for students with VI and with additional diagnosis. Through a self-reflective and iterative process and observations of children's reactions, Nielsen outlined a program for teaching practices and strategies to support educators when interacting with children with VI. Nielsen (1990) organised this educational approach into five phases and labelled these as the techniques of offering,

imitation, interaction, sharing the work, and consequence. Each phase included a specific interactive purpose, such as observing or learning about the child's ways of interpreting the world, introducing activities and movements not yet performed by the child, or initiating and sustaining interactions. Nielsen specifically highlighted the importance of reciprocity in the teacher–student interactions. Neilson's pedagogy for students with VI has now been used for over 20 years (DoE publishing as DET, 2018) and has led to greater awareness of the potential proximal processes (Bronfenbrenner & Evans, 2000) and information-gathering strategies (Smitsman & Schellinerhout, 2000) used by students with VI.

While there is literature available on various pedagogies of classroom practice (DoE publishing as DET, 2017; Hattie & Yates, 2014) and practices for students with VI (Ferrell, 2011; Nielsen, 1990), there is a notable absence of literature on the interactive pedagogy of O&M learning and teaching. Traditional O&M textbooks (Hill & Ponder, 1976; Pogrund et al., 1993; Wiener et al., 2010) reference O&M teaching strategies as activities, teaching tips, or safety considerations. For example, Pogrund et al.'s (1993, p. 11) illustration of teaching strategies include "teach the student how to problem solve", "help the student develop the visual skills" and "create a game with a group of students". Historically, O&M teaching strategies are broadly framed as developmentally appropriate, functional, contextual and play based (Pogrund et al., 1993; Wiener et al., 2010), without specifics of the ways pedagogical interactions in an O&M learning and teaching context are implemented.

Learning and teaching O&M is not the typical student-to-teacher relationship (Brannock & Golding, 2000). After being alerted to the gap in O&M learning and teaching pedagogies, Australian O&M specialists Brannock and Golding (2000) appropriated Nielsen's (1990) active learning strategies and De Bono's (1967) lateral thinking premises to identify eight teaching practices to support educators of students with VI (see Table 2.3). Brannock and Golding (2000) defined the eight important pedagogical considerations for O&M learning and teaching as follows: cooperation, language, "one thing", exploration time, space versus place, student responsiveness, movement, and labelling. These eight teaching

strategies went some way to exacting conditions for learning for students with VI, and stimulated discussion around pedagogical practices in O&M.

Table 2.3. Eight Essential Points of O&M[1]

Category/ Type	Description
Co-operation	The way we work is one of co-operation. This means the adult and student work as equals in a partnership, and not in the traditional teacher/student relationship.
Language	The adult uses language, which reflects the partnership and co-operation instead of directing the student to do.
One thing	We are capable of thinking of only one thing at a time.
Exploration time	The student may need a lot of time for exploration to become comfortable in that area.
A space is not a place	A space is irrelevant to the student for no action is carried out there. A place is important because we do things there.
Student responsiveness	The student may not respond verbally to your language during the lesson.
Movement	The student should always be moving towards the familiar known place.
Labelling	An object is more easily remembered if the students *[sic]* themselves give it a name.

Note. [1] From *The 6 step method of teaching orientation and mobility* (p. 112), by G. Brannock and L. Golding, 2000, Australia: Brannock & Golding. Copyright 2000 by Grant Brannock and Leo Golding. Reprinted or adapted with permission

A space is not a place.

O&M interactions necessitate consideration of students' abilities, experiences, and aptitude to interpret their non-visual space through perceptual experiences (Brannock & Golding, 2000). As Tuan (1977) claimed, it is important to first experience the objects and places that comprise a space before defining that space. This is especially the case for students with VI, whose interpretation and experiences of the world are often incomplete and fragmented (Ferrell, 2011). Thus, for students with VI, facilitating the changing perceptions of space to a place requires kinaesthetic, tactual and perceptual experiences (Nielsen, 1990). O&M learning and teaching is one mode of learning that focuses on exploration and information gathering through cooperative activity of different sensory systems for students with VI.

"Space and place are familiar words denoting common experiences" (Tuan, 1977, p. 3). According to Tuan (1977, p. 3), "space and place are basic components of the lived world", although the terms are bound by "unexpected meanings" (p. 3) and interpretations. The way people attach meanings to and organise space and place, the way space and place are defined, and the factors that offer a place an identity are relevant concepts when considering the meanings and organisation of these terms from a non-visual perspective in terms of navigating and moving through an environment (Saerberg, 2010). For instance, Brannock and Golding (2000) argued that the role of O&M learning and teaching is to facilitate the perceptual strategies used by students with VI to interpret and signify differences between a space and a place. They claimed that students with VI live in space, but that place is security.

As with most interpretations of the human world, the organisation of space is dependent on sight, with other senses enlarging one's spatial awareness in areas that cannot be seen (Tuan, 1977). The understanding of space and place then develops and is acquired throughout a lifetime. Tuan stated that what begins as "undifferentiated space becomes place as we get to know it better and endow it with value" (p. 6). In *Touching the Rock*, Hull (2013), who adventitiously lost his vision, described how his interpretation of the space around his home is imbued with places during a rainstorm, with the change in

ambience from the rain effectively filling what Hull had previously perceived as open space. This conceptualisation of space and place exemplifies the application of space and place for students with VI in an O&M context. Tuan claimed that “if we think of space as that which allows movement, then place is pause; each pause in movement makes it possible for location to be transformed into place” (p.6).

According to Tuan (1977), places are a focus of value—they stay put, are stable and permanent, and are given meaning through knowledge of the world. However, space is an abstract term for a complex set of ideas that reference the structure of the human body and the physical distances, directions, and localities between other humans, objects, and spaces. Tuan (1977) argued that when space feels thoroughly familiar to us; it has become place. According to Saerberg (2010, p. 364), “space is not a given. Rather space is constructed through subjective experience and social interaction”. Saerberg (2010) explained that, when interacting and interpreting space, it is necessary to link strategies to the style of perception and cognition of the student with VI. He claimed that space for a person with VI is individually constructed and based on the person’s own knowledge, skills, and needs. Saerberg (p. 377) labelled this creation of space as “blind perception”. Saerberg explained: “as a blind person, I obtain orientation and generate movement by creating a multimodal space of related sensory perception in a sensed unity of the world within my felt, tactile, acoustic, and olfactory reach” (p. 369). He stated that he has layers of reach tied to particular sensory fields, such as “the world within my visual reach”, “the world within my acoustic reach”, and “the world within my olfactory reach” (Saerberg, 2010, p. 368). Moreover, Saerberg concluded that “communication and interaction between the blind and sighted is complicated”, with the sighted person’s senses and functions “ordered differently, for specific social contexts” (p. 365).

Interactions with texts.

In his bioecological model, Bronfenbrenner (2005) identified the properties of the environment that are “capable of affecting the course and consequence of human development” (p. 68). According to Bronfenbrenner (2005, p. 75), the environment includes

the immediate physical environment, such as “objects that invite particular types of activities and reading materials” and the structure of the setting with “respect to barriers … restricting or directing movement and activity”. Specifically, Bronfenbrenner (2005, p. 76) identified the interaction within the microsystem as “the conceptual structures and strategies typically employed by the individual in interpreting and manipulating the outside world”. Given that students with VI miss the incidental learning afforded by vision, their immediate setting necessarily includes the social, cultural, spatial, sensory, tactile, kinaesthetic, and physical environments. For the student with VI and in this research, these objects and places are termed texts.

Knowledge of the world, and consequently development, is built through interactions with the world (Bronfenbrenner, 2005). For students with VI, interpretation of and experience with the environment is the basis for learning (Landau, 1983). Yet the lack of incidental learning opportunities afforded students with VI across the physical, cognitive and social domains (Warren, 1994) reinforces the need for explicit, scaffolded teaching of information-gathering and interpretive skills. O&M learning and teaching offers students with VI multiple opportunities to interact with and interpret their environment. As suggested by LaGrow (1998, p. 195), O&M is a “learned skill requiring the child to selectively attend to various sensory input, and assign meaning to that input”.

The word “text” derives from the Latin “*texere*”, which means “to weave” (Nordquist, 2017). First used to denote parts of the Bible studied by scholars, a “text” was considered a literary work that was open to interpretation and subject to the scrutiny of editors and bibliographers (Australian Catholic University, 2017). Most definitions consider a text a linguistic structure woven out of words or signs, although Nordquist (2017) claimed that the rhetoric of the term “text” includes any piece of written or spoken discourse, and anything that can be read or analysed. For Fornas (1997, p. 109), this historic conception of text represents a “verbocentric paradigm” whereby all human communication is basically conceived in linguistic terms and as one semiotic code. However, structuralist and poststructuralist literary theories and post-modern and modernist theories have altered this

historical interpretation of the term “text” (Stables, 1997). Nowadays, the term “text” is synonymous with a range of presentations, codes, and mediums. These mediums include oral (Pettersson, 2015), pictures and graphics (O'Brien, 2015), music (Fornas, 1997), electronic and multimedia (Robinson, 2009), cultural (Hoffman, 2009), social, spatial, environmental (Benton-Short, 2006; Hostetter, 2016; Stables, 1996), nature, and sensory (Clingerman, 2009) mediums. Therefore, as Schneider (1987, p. 808) so aptly stated, “the world is a text”. More significantly, in the “Curriculum into the Classroom” units, the Queensland Government (2017) identifies a text as any object, environment, person or space that a student is engaged with or attending to as a means for communication about their environment.

Text-processing strategies.

Identification of the world as a text assumes that the world conveys meaning and can subsequently be interpreted as a text (Braid & Long, 2010; Clingerman, 2009; Schneider, 1987). For Hostetter (2016, p. 65), “the diverse elements of place, structures, objects, people’s daily routines, and environmental contexts form repositories of coded information that can be retrieved”. He added that “reading a place requires one to go there, to move around in it, using not just sight but also all the senses”. In an earlier article, Robinson (2009, p. 47) alluded to using the senses during interpretation of texts, stating that “the text might have its own defining reality, independent of how we perceive it, yet we are able only to comprehend the one reality through the various misleading instruments of our senses and knowledge”. Further, in decoding and comprehending urban environments as texts, Braid and Long (2010, p. 52) discussed honing “observational skills” and considering “how one’s own lens works”.

For the ACARA (2018h), text-processing strategies are the “strategies readers use to decode a text”. These strategies include drawing on prior and contextual knowledge, predicting, monitoring, identifying and correcting errors, and rereading. Freebody and Luke (1990) proposed the concept of systematic and contextual text-processing strategies that acknowledge that text goes beyond print. Comparable text-processing strategies were

applied by Hostetter (2016) to the decoding and interpretation of landscape, place, and space. Specifically, for students with VI, these processes include sensory processing strategies; a shared metalanguage for talking about the physical, cognitive and social world; and a decoding and retrieval strategy (Hostetter, 2016).

Examined in this chapter and the following chapter, the three components of the conceptual framework, the theoretical overview, the subsumer notions, and the critical literature review add to the overall research narrative. Through the use of narrative and reflexivity, I hope to better understand and provide opportunities to transform the thinking and awareness around the influence of VI and O&M learning and teaching. My narrative aims to explain the essential meaning and practice that I (as an O&M specialist) and my students make of our conscious worlds (Ferguson & de Abreu, 2016). As Mishler and Mishler (2009) suggested, narrative is one of many ways of converting knowing into telling. Mishler and Mishler added that “the primary way human beings make sense of their experience is by casting it in a narrative form” (p.68).

In Chapter 3, I proceed to the topical research component of the conceptual framework acknowledged by Ravitch and Riggan (2017) as the contemporary research concepts and trends germane to the field of study. The literature review forms the third component of the conceptual framework (see Figure 2.1) and is designed to further illustrate the influence of historical and sociocultural constraints on O&M learning and teaching.

Chapter 3: Literature Review

In Chapter 1, I detailed the background to this research, which followed the Australian government's call for an inquiry into teaching practices for students with a disability (DoE publishing as DET, 2017). Previoiusly, there had also been an international call for equitable outcomes for students with VI following the results of the American National Transition Study (Lee et al., 2014). Together, these two reports highlighted the incongruence between learning outcomes for students with VI and their sighted peers.

Having detailed the need to interrogate viable approaches to improving learning outcomes for students with VI (see Chapter 1), I introduced a conceptual framework in Chapter 2 as a graphic and an advanced organiser for the narrative exposition for this research. I purposefully positioned the conceptual framework at the start of the thesis in an attempt to foreshadow the notions that inform the research. The conceptual framework comprises three parts: (i) the theoretical overview, (ii) subsumer notions (both in Chapter 2) and (iii) the literature review (the current chapter). Expanding on the graphic representation of the conceptual framework, in Chapter 2, I presented a precis on the six systems of Bronfenbrenner and Morris's (2006) bioecological model of human development as the theoretical overview for the research. The six systems of Bronfenbrenner and Morris's bioecological theory of development represented as the macro-, exo-, meso-, micro-, bio- and chronosystems provided a platform to understand and describe the many interactions that occur over time for students with VI. Bronfenbrenner and Morris's theory of development is useful to this research because O&M is a continuous component in the lives of students with VI, is central to students' ongoing interactions, and is consequently integral to the development of students with VI (Hatlen, 2006).

In Chapter 2, I also provided a synopsis of the literature on the subsumer notions that are relevant to O&M learning and teaching. I introduced subsumer notions in an attempt to render the data collection (see Chapter 4) and data analysis (Chapter 5) process more transparent (Nightingale & Cromby, 1999) and purposeful. As Ferguson and de Abreu (2016,

p. 112) argued, the “reflexivity of the researcher plays a critical role in both the collecting and analysing of the data”.

Through employing ethnographic reflexivity, I presented the five subsumer notions as a means to assimilate new ideas regarding education, learning, and development into previously established cognitive structures (Ivie, 1998). Each subsumer notion was determined from one of three areas: (i) my life experience of O&M, (ii) my continued examination and interpretation of the influence of VI on the students with whom I work, and (iii) the socioculturally accepted practices of O&M learning and teaching. As Mills (1961, p. 196) stated, having experience means that “your past plays into and affects your present, and that it defines your capacity for future experience”. In presenting the subsumer notions, I am working towards avoiding precipitancy and prejudice by dividing my thoughts into the many subsumer parts. In this manner, I aim to progress to more complex knowledge and construction of detailed accounts of O&M learning and teaching (see Chapter 5).

Therefore, through acknowledging each subsumer notion or “point of departure” (Antonenko, 2014, p. 57) as a research area in itself, I presented a precis of the literature on inclusive education, Australian and international curriculum structures, and pedagogy for students with VI. I also provided an exposition on non-visual exploration of space and text for students with VI. Reflexively, I consider these subsumer notions as liminal in gaining a better understanding of O&M learning and teaching, and as central to the underpinning research narrative regarding VI, O&M, and education. Chapter 2 thereby provided a valuable segue into the extended literature provided in this chapter.

In this literature review chapter, I draw on the ideas of Ravitch and Riggan (2017) in establishing a literature review for this study. According to Ravitch and Riggan (2017), literature reviews contain synthesis and examination of empirical literature, privilege important intellectual traditions that guide the professional field, and play a critical role in the construction of conceptual frameworks. Therefore, I completed two separate literature reviews to investigate the research focus areas. The first is a critical review of the dominant discourse on O&M learning and teaching to identify if and how such privileging might occur. I

undertook this process by conducting a critical methodological literature review of pertinent research in O&M. The second is a separate review addressing the empirical literature on the research focus areas. By completing two differently focused literature reviews, I continue to expand on the sociocultural discourse that is O&M learning and teaching, develop a greater understanding of my professional culture, and subsequently gain a better understanding of the practice of O&M learning and teaching.

In this chapter, I begin by outlining my reason for undertaking a reflexive view of the narrative of O&M learning and teaching research. I then proceed to elucidate the scope of the literature review, and detail the results of the critical three-way literature investigation into the dominant discourse on O&M. I examine the dominant research perspectives and worldviews present in O&M research by interrogating the intellectual and analytical tools most commonly employed in researching the phenomenon of O&M. I argue that there is a consistent philosophical worldview underlying much of the activity in O&M research, which promotes a circular narrative of "attitudes, beliefs, status, concerns, … perspective[s] and interest[s]" (Lagerman, 1997, p. 14) that impede a shared commitment to studying and improving the fundamentals of O&M learning and teaching.

Following the literature reviews, I revisit the main claims from within the research literature on O&M learning and teaching with respect to the two research focus areas. These focus areas are: (i) understanding the pedagogical practices of O&M within the Queensland DoE for students with VI, and (ii) understanding the alignment of O&M learning and teaching with the Australian Curriculum. I conclude this chapter by identifying the gaps in the literature and considering the importance of this research for the field of O&M learning and teaching.

Narratives in O&M Learning and Teaching Research

While undertaking background reading during the early stage of my research project, I happened upon literature by Clandinin and Connelly (2000) regarding grand narratives in educational research. This discussion alerted me to look inwards towards my own professional O&M culture. I reflected on how infrequently I had interrogated, questioned or dwelt upon the dominant narrative of O&M. I concur with Clandinin and Connelly (2000), who argued for the importance of developing awareness of the grand narrative and underlying paradigm of any research phenomena. I believe that interrogating the worldview of O&M learning and teaching is relevant to more deeply understanding the influence of the systems, processes, and contexts for the student with VI. By exploring the grand narrative of O&M, I also lay bare my profession and the effect of the grand narrative on expected O&M learning and teaching practices.

Contemporary social sciences conversations include the derivation of the philosophy of research and the constitution of a scientific discipline (Creswell, 2013; Glesne & Peshkin, 1992; Lincoln & Guba, 1985). Each discipline lays claim to a range of research perspectives, schools of thought, assumptions, beliefs, and adherents that become indicators of research traditions, thereby dictating appropriate research methods and the nature of valid evidence. According to Chua (1986, p. 604), these beliefs “delineate a way of seeing and researching the world” and can be seen to constitute the distinctive research perspectives or worldviews that researchers adopt in their research. These worldviews result in value-based paradigm choices and grand narratives (Clandinin & Connelly, 2000) . Stated another way, a research grand narrative of O&M dictates the professional worldview, which in turn prescribes the practice of O&M learning and teaching.

The introduction of the term “grand narrative” by Lyotard (Bennington & Massumi, 1993; Hörnqvist Mikael, 2004) drew awareness to the underlying political, social, and economic narratives embedded in any knowledge claim. Historically, educational research was embedded with complaints and criticism as different groups sought to define and advance their individual research strategies and assert their superiority of knowledge

(Lagerman, 1997). According to Lagerman (1997), the grand narrative and philosophical worldview of educational research was largely determined and sustained by political, fiscal, and social bureaucracy. For Clandinin and Connelly (2000, p. 22), the grand narrative is a self-perpetuating “unquestioned way of looking at things”.

The Scope of the Literature Review

An initial literature search was prepared using the terms “O&M” combined with vision* and impair* or disab* or blind*, and supplemented by the recent literature search by Emerson and McCarthy (2014). To specifically confine the results to the most recent journal articles, and to reduce any overlap from Emerson and McCarthy (2014), the date range was restricted to 2013 to January 2016. The databases included Web of Science, Google Scholar, and ERIC, as well as conference proceedings from South Pacific Educators of the Vision Impaired (SPEVI) and the International O&M Conference 2016. The search included empirical research printed in English, peer reviewed, and available with full text online.. Duplicate articles from Emmerson and McCarthy’s (2014) literature search were eliminated. Dissertations and doctoral thesis were not included in the initial literature search which focused on journal articles, but were included following a broader literature search and a targeted review (see this Chapter, p. 64). The relevant dissertations were included in the final literature analysis. Practice or position papers however, were not included in the final literature analysis. I acknowledge that, when locating current articles and conference proceedings, there may have been inadvertent exclusions.

The initial peer reviewed journal search generated 19 articles, comprising 16 research articles and three conference presentations, retrieved from 10 journals and three conference proceedings. Table 3.1 displays the distribution of O&M research published across the journal and conference proceedings. Non-vision-specific journals and conference proceedings represented 42% of the journal sources. The *Journal of Visual Impairment and Blindness* represented 36.8% of the retrieved articles. A surprising find was the underrepresentation of articles from alternative VI, O&M, disability, and education-specific

journals and conferences, such as the *Journal of South Pacific Educators for the Vision Impaired*, *International Journal of O&M*, and *British Journal of Visual Impairment*.

Table 3.1. Articles per Journal and Conference Proceeding

Journals	Number of articles per journal	% of articles per journal
Nonvision specific journal (assistive technology, transportation, travel, computer or engineering journals or conferences)	8	42.0%
JVIB	**7**	**36.8%**
Ophthalmology	1	5.3%
Optometry and Vision Science	1	5.3%
Journal of Neuro-Ophthalmology	1	5.3%
British Journal of Visual Impairment	1	5.3%
Total	**19**	**100%**

I drew on Emerson and McCarthy's (2014) six topic-oriented research categories to allocate a single primary category or combined category to each article. Table 3.2 represents this list of categories and the associated relative frequencies. The six categories were built environment (including complex traffic), early childhood, multiple disabilities, teaching focus, Electronic travel aids (ETA's), and long-cane use and design. An additional category of "other" was included to allow for the diversity of research articles. The categories of "teaching focus" and "other" included a range and combination of O&M and VI themes. The percentages were rounded to the nearest whole with one decimal point. The categorisation of the retrieved articles indicates that ETAs are a leading theoretical topic area in O&M research. Though the later supplementary search provided a single study on early childhood and O&M, available articles on early childhood and O&M remained under represented which

supports Emerson and McCarthy's (2014) conclusion regarding the void of O&M research in the early childhood sector.

Table 3.2. Articles per Research Category

Research category	Number of articles per category	% of articles per category
Other	6	31.5%
Teaching focus	6	31.5%
ETA's	4	21.1%
Multiple disabilities	1	5.3%
Built environment	1	5.3%
Long cane use	1	5.3%
Early childhood	-	-
Total	**19**	**100%**

Three-way Literature Analysis

To explore the existing paradigm of research in O&M, I subsequently completed a literature analysis. To achieve this, I combined the literature search previously outlined (see Tables 3.1 and 3.2) with a three-way literature classification. To explore the "extent to which a dominant set of assumptions" (Orlikowski & Baroudi, 2011, p. 4) informs O&M learning and teaching research, I analysed the literature in three different ways. The three-way analysis of the 19 articles comprised classification and analysis of the articles by research design, then by the timeframe of the study, and finally by epistemology (Orlikowski & Baroudi, 2011).

Classification of articles by research design.

Table 3.3 displays the frequency of the various research designs in the 19 articles. Three primary research designs emerged: statistical measures (42%), surveys and questionnaires

(15.8%), and research with a mix of both statistical measures and surveys (15.8%). These three designs accounted for almost 74% of the studies under review. Statistical measurements were clearly the dominant research method in this sample.

Table 3.3. Classification of Articles by Research Design

Research design	Number of articles per research design	% of articles per research design
Statistical measures/ scores/ secondary data	8	42.0%
Survey/ questionnaire	3	15.8%
Mixed Survey/scores	3	15.8%
Interviews	2	10.5%
Case study	2	10.5%
Focus group	1	5.3%
Total	**19**	**100%**

Classification of articles by period of study.

The 19 articles were then analysed based on the period of the study (see Table 3.4). I appropriated the four period categories initiated by Orlikowski and Baroudi (2011) to O&M research. For example, the information-processing category “process traces” used in Orlikowski and Baroudi’s (2011) literature investigation was replaced by “short period” to more specifically reflect the O&M field of research. It can be seen that static single snapshot studies are the predominant form of research in O&M. These studies accounted for nearly 50% of the articles in the sample, while longitudinal studies accounted for only 10.5% of the literature sample.

Table 3.4. Classification of Articles by Time Frame of Research

Time frame of study	Number of articles per time-frame	% of articles per time-frame
Static/ single snap shot trials	9	47.3%
Short period (days/hours)	4	21.1%
Multiple trials	4	21.1%
Longitudinal	2	10.5%
Total	**19**	**100%**

Classification of articles by epistemology.

The final analysis of the articles involved investigating the underlying epistemology that guided the research (see Table 3.5). Similarly to Orlikowski and Baroudi (2011) and Chua (1986), I classified the research epistemologies into positivist, interpretive, and critical studies. The criteria adopted in classifying studies as positivist required evidence of the central tenets of positivism, such as "formal propositions, quantifiable measures of variables, [and] hypothesis testing" (Orlikowski & Baroudi, 2011, p. 5). The studies deemed interpretive were identified based on Orlikowski and Baroudi (2011, p. 6), where the "intent of the research was to increase understanding of the phenomenon within cultural and contextual situations" in "natural setting[s] and from the perspective of the participants". The criteria adopted for classifying critical studies required evidence of a fundamental critical and political orientation with an emphasis on communicative action (Willmott, 2011).

The article analysis revealed that the positivist epistemology was most dominant, accounting for 63.2% of the studies. Interpretive studies represented less than half of the studies, while critical studies were not represented at all in the O&M research field.

Table 3.5. Classification of Articles by Epistemology

Epistemology	Number of articles per epistemology	% of articles per epistemology
Positivist	12	63.2%
Interpretive	7	36.8%
Critical studies	0	0
Total	**19**	**100%**

The primary goal of this literature interrogation was to examine the dominant research perspectives and worldviews present in the O&M research phenomena. In particular, the aim of this critical methodological literature review was to consciously examine and question the underlying assumptions of the O&M research community. By examining my own professional culture, I hoped to develop a deeper understanding of the practice of O&M learning and teaching, and to encourage a transformation of thinking about O&M learning and teaching.

The results from the three-way critical literature analysis collectively indicated that built environments and ETA categories continue to be dominant practice and research in O&M. This confirms the conclusions by Emerson and McCarthy (2014, p. 273) that “using and adapting technology is a dominant trend”, and adds little to Scott’s (2015) discussion about learning through O&M. In addition, there was clearly a predominant set of assumptions about what constitutes acceptable O&M research, and consequently the culture of O&M learning and teaching. These assumptions appear to influence much of the published O&M research, and include investigations of phenomena from a primarily quantitative epistemology, mostly employing single snapshot and statistically measured data.

There are a number of drawbacks to online search and literature analysis techniques. The limited number of published articles on O&M compared with other social sciences and other fields in VI has inherent downsides for any literature analysis. Therefore, it is important to acknowledge that this study might not have captured all of the O&M research. Ostensibly, according to Culnan (1987), any literature survey is biased by the accessibility or inaccessibility of a particular article. I also concur with White and Griffith (1981) in conceding difficulties in characterising category and topic areas from smaller amounts of documents, and accept that some authors not included in this literature survey may have introduced additional topic areas that go beyond O&M. With these limitations in mind, the critical methodological review does reveal a narrow approach to O&M. Perhaps the results of the literature analysis are a reflection of the maturity of O&M as an academic discipline. As Culnan (1987, p. 341) suggested, “the existence of paradigms is one indication of a discipline’s maturity”.

There is no way to determine whether O&M researchers consciously examine the predominant set of assumptions about what constitutes acceptable O&M research, or the resulting culture of O&M learning and teaching, or merely accept this paradigm and grand narrative of O&M . For Huebner and Wiener (2005, p. 579), O&M is a “fundamental and enabling life skill”, yet the lack of acknowledgement of alternative research traditions potentially limits which aspects of O&M are studied. According to Orlikowski and Baroudi (2011, p. 8), lack of diversity in research approaches has “far reaching” implications for the development of theory and the understanding and practice of the O&M phenomena. The fact that my research uses an alternative research lens to the traditional O&M research paradigm adds weight to the uniqueness and significance of my research for the professional field of O&M learning and teaching.

A Circular Narrative

The grand narrative in O&M research has developed as an attempt by a relatively young professional field to be granted scientific credibility through largely quantitative, statistical and short-term research on ETAs, and research on the built environment (such as road

crossings). The critical literature analysis confirms the historical view of O&M as the technical instruction of long-cane and independent travel for adults with adventitious VI (see Chapter 1). Consequently, a circular narrative of O&M learning and teaching is established—that is, the research paradigm identified in the critical literature review and subsequent texts inform the practice, pedagogy, and perception of O&M, which in turn reinforces the research.

In a circular narrative, the idea of seeing and being seen is simultaneously unravelled (Atayurt-Fenge, 2017). Through the critical methodological literature review and through foreshadowing notions central to the narrative, I am able to explore the socio-political narrative that operates underneath the notion of the gaze (Atayurt-Fenge, 2017). Within a circular narrative, subsumer notions (see Chapter 2) are ascribed to both the gaze (outwardly at my own profession) and the gazer (inwardly at my own practice) through various spatial and temporal configurations. In this manner, I offer a multifaceted circular debate on the ways of seeing the O&M profession, and how I chose to be seen as an O&M specialist. I am simultaneously exploring the notion of "looking at and being looked at" (Atayurt-Fenge, 2017, p. 287), with an "inseparability of space and time", as argued by Bakhtin and Holquist (1981, p. 119).

A circular narrative commits to the idea of a well-drawn circle "rendering all the sub narratives an equal distance to the central narrative" (Atayurt-Fenge, 2017, p. 288). However, through attempting to unify the threads of narrative about VI, education and O&M under the same contextual umbrella, I am hoping to create in the viewer (me) a "desire and curiosity to look" (Atayurt-Fenge, 2017) beyond the circular narrative. I desire to gaze not only at the well-drawn circle, but to view each sub-narrative of O&M, VI, and education both separately and as a cohesive whole. I aim to achieve this with the ultimate goal of gaining a better understanding of O&M learning and teaching.

Analysis of the Literature on the Research Focus Areas

In the previous section, through a critical methodological literature review, I determined that a grand narrative exists regarding what is considered substantive research in the professional field of O&M. The literature review of the research focus areas builds on

Bronfenbrenner and Morris's (2006) overarching theoretical model and the foreshadowed notions (see Chapter 2) pertinent to O&M learning and teaching. In this literature review, I continue to gaze and be the gazer of the circular narrative on O&M learning and teaching.

To complete an analysis of the literature specific to the research focus areas, I draw on the 19 reviewed articles of the critical methodological literature review (see previous section). The two research focus areas are: (i) to better understand O&M learning and teaching, and (ii) to better understand the alignment of O&M with the Australian Curriculum. For clarity, I discuss each review question as a separate section. As a result of the limited literature on O&M in the Australian context, I broadened the literature review questions to understand the practice of O&M learning and teaching, and understand the alignment of O&M learning and teaching with core curricula. I identify the basic claims about O&M learning and teaching, and alignment with the Australian Curriculum. I conclude this chapter with a discussion of the strengths and weaknesses of the main claims from each of the texts, and the extent to which the reviewed texts illuminate the two focus areas.

Understanding the practice of O&M learning and teaching.

A targeted review of the research and articles related to O&M learning and teaching was completed within the six topic areas and 19 articles previously identified. Research studies were included if they encompassed at least one student with VI, and presented empirical data related to O&M learning and teaching and/or curriculum. I also completed an additional literature search of doctoral dissertations which contained an O&M learning and teaching focus, and were completed between 2013 and 2016. The resulting five studies included three from the "teaching focus" category (Cmar, 2015a; Cmar, 2015b; Magalhaes, Sankako, & Braccialli, 2014), one from the "other" category (Bruce, Feinstein, Kennedy, & Liu, 2015). The single doctoral dissertation (Scott, 2015), included after the supplementary literature search resulted in a combined category of early childhood and long cane use. In total, these studies comprised 58 students with VI, aged five to 18 years. The number of students included in Cmar's (2015a) secondary data analysis was not specified and not included in the total number of students in this literature review.

Only one doctoral dissertation (Scott, 2015) met the search criteria, and specifically addressed O&M learning and teaching in Australia, and referred to the Australian Curriculum. The three "teaching focus" articles (Cmar, 2015a; Cmar, 2015b; Magalhaes et al., 2014) respectively investigated the factors associated with post-school employment, performance-based O&M rubric scores, and the strategies used by a teacher to support the mobility of a student with VI in the school environment. The research article from the "other" category (Bruce et al., 2015) investigated animal-assisted humane education. These articles employed a range of methodologies and methods of data collection, including quantitative secondary data analysis, mixed-method and qualitative semi-structured interviews, and observations (see previous critical literature analysis section in this chapter).

A further two articles of particular importance from Emerson and McCarthy's (2014) literature review that met the criteria of my literature search were also included for further investigation. The research article by Saenz and Sanchez (2010) investigated ETAs and specifically focused on indoor wayfinding technology. The remaining article by Anderson (2011) explored the statistical correlation between O&M and literacy and numeracy for students with VI. Similarly to the original five articles identified previously, these two studies included a range of methodology and methods. However, like in Cmar (2015a), the participant numbers from Anderson's (2011) secondary data collection were not clearly specified, and subsequently not included in the total number of students in this literature review.

In summary, this literature review includes 58 students between the ages of five and 18, from seven articles. These articles represent a range of empirical research on O&M learning and teaching, including ETAs, multiple disabilities, teaching focus, and long-cane use. Only one article specifically referenced both O&M and curriculum. Most importantly, there were differences between the research accounts, ages of the students, levels of the students' VI, assumptions around O&M learning and teaching practices, and type of intellectual projects with which the various authors engaged.

Despite the immediacy of the challenge of increasing learning and employment outcomes for students with VI (Lee et al., 2014), there have been surprisingly few recent studies conducted on O&M learning and teaching. Exceptions are the quantitative data analysis on the possible causal relationships between complex travel skills and employment outcomes explored by Cmar (2015a), the case study by Magalhaes et al. (2014) and the longitudinal doctoral study by Scott (2015). Several other works also have some bearing on the questions addressed here. For example, Bruce et al. (2015) explored effective methods of instruction for students with VI; Anderson (2011) employed statistical correlational data analysis on literacy, numeracy, and O&M; and Cmar (2015b) examined O&M assessment strategies. In addition, Saenz and Sanchez (2010) investigated the use of ETAs to detect obstacles.

At first glance, there seems to be consensus about O&M learning and teaching content, whether this implies that it should focus on community travel (Cmar, 2015a), long-cane travel (Scott, 2015), traditional route travel (Magalhaes et al., 2014) or formal technical O&M skills (Anderson, 2011). However, there is a lack of consensus regarding the effect of O&M learning and teaching—whether it has no effect (Anderson, 2011), has a direct influence on employment (Cmar, 2015a) or results in a nontangible increase in self-confidence and independence (Scott, 2015). Only one research article (Bruce et al., 2015) focused on the "how"—or actual pedagogical practice—of O&M learning and teaching.

The three studies by Cmar (2015a), Magalhaes et al. (2014) and Scott (2015) proposed that O&M learning and teaching is an important adjunct to the lifelong learning outcomes for most students with VI. To complete a statistical analysis of secondary data, Cmar (2015a) collected data from the second American National Longitudinal Transition Study (NLTS2) to investigate employment outcomes for students with VI, based on their O&M skills and expectations. School program surveys, parent and student surveys, and an O&M skills assessment from the Teaching Age Appropriate Skills checklist (Pogrund et al., 1993) formed the basis of the original data collection. Cmar (2015a) applied a range of descriptive analysis, Pearson's correlations, regression analysis, and statistical software to

adjust for missing data collected from the NLTS2, and conceded the difficulties with large amounts of missing data on O&M for students with VI. Moreover, the O&M data in Cmar's (2015a) study were based on linear, technical, and traditional O&M skill progression, without due consideration to commencement of O&M learning and teaching, and the duration and variation in O&M programs over time. In particular, the O&M data from the NLTS2 focused on memorised-route travel styles of O&M; the formal types, durations, and definitions of mobility activities and training; and traditional models of what successful O&M entails, which are now over a decade old (Pogrund et al., 1993).

However, Cmar's (2015a) claims regarding the effect of O&M on post-school outcomes for students with VI were consistent with a multitude of literature (McDonnall, 2011; Sacks & Wolffe, 2005; Wolffe & Kelly, 2011). A detailed set of assertions highlighting the relationship between O&M campus travel, community travel and employment outcomes for students with VI was provided by Cmar (2015a) as a result of the study. According to Cmar (2015a), students with VI who rated highly on community travel and independent travel skills were more likely to be employed.

Like Cmar (2015a), Magalhaes et al. (2014) were interested in identifying O&M practices and learning outcomes for students with VI. However, for Magalhaes et al. (2014), the focus of their investigation was on the strategies used by an early childhood teacher to support the O&M of a student with VI. Unlike Cmar (2015a), Magalhaes et al. (2014) embraced qualitative methodologies to collect descriptive data, including video- and audio-recording of the O&M learning and teaching provided to a child with VI. The data analysis included identification and description of themes around O&M learning and teaching for young students with VI. Magalhaes et al. (2014) made confident claims to a broad spectrum of O&M teaching and learning scenarios. However, their extensive generalisations were determined from a single student and teacher scenario, with little additional supporting theoretical or research literature. Similarly to Cmar (2015a), Magalhaes et al. (2014) based their data collection on a small repertoire of traditional and formal O&M skills. A considerable range of theoretical literature offers disconfirming evidence to this rhetoric on O&M learning

and teaching—particularly the way students with VI gather and use environmental information for orientation purposes (Dewald et al., 2015; Griffin-Shirley et al., 2006; Hill, 2015). According to Magalhaes et al. (2014), O&M is important for the development of confidence and efficient movement of young children with VI. However, Magalhaes et al. (2014) offered little to the practice of O&M learning and teaching other than to assert that O&M intervention can only be supplied by an O&M specialist.

In contrast, Scott (2015) focused on the perspectives and experiences of young children, their parents, and specialist teachers of VI. Through employing an interpretive interactionist approach, Scott (2015) used semi-structured interviews to examine O&M intervention, including long-cane instruction, from the perspectives of participants in an Australian early childhood school program. Like Cmar (2015a) and Magalhaes et al. (2014), Scott (2015) consistently stressed the significance and importance of early O&M learning and teaching for students with VI. Although Scott (2015) primarily investigated a limited range of traditional and technical O&M skills, such as long-cane use, other areas of O&M learning and teaching were also identified. For Scott (2015), the nontangible areas of O&M learning and development—such as self-determination; self-management and awareness; and spatial, tactile, and social development—are equally important O&M practices.

A range of O&M skills beyond the traditional O&M teaching rhetoric were referenced in the study of humane education by Bruce et al. (2015). In their study, Bruce et al. (2015) asserted that O&M explorations support students to make connections to prior knowledge, and allude to other areas of O&M learning and teaching, such as problem solving, exploration of objects and environments, and choice making. While Bruce et al. (2015) supported the claims of effective pedagogy for students with VI with a range of theoretical and practice literature, their data linking O&M learning and teaching to animal husbandry were tenuous at the least. However, the existing literature supports their assertion that students with VI learn differently and have different conceptual understandings that require different types of instruction across the curriculum. Specifically, Fleer and March (2015)

reported on the value of concrete, inquiry, and social models of learning for students with VI in science, as did Gower (2017) in the core learning area of geography.

All the articles in the literature review strongly advocated for the importance of O&M for students with VI, claiming some causality between O&M learning and post-school outcomes. However, the investigation by Anderson (2011) on the correlations between literacy, numeracy, and O&M somewhat contradicts the above researchers' assertions of the value of O&M learning and teaching. Anderson (2011) claimed that participation in O&M is not related to literacy or numeracy outcomes for students with VI. In addition, Anderson (2011) claimed that not participating in O&M instruction was associated with higher performance on some academic indicators, and that there was no association between the time or age of O&M instruction and higher skill levels of O&M.

Like Cmar (2015a), Anderson (2011) completed statistical analysis of secondary data. Anderson (2011) collected data from three studies of approximately 850 students with VI who participated in the American Special Education Elementary Longitudinal Study. The original data were collected in waves over five years, and gathered from students' standardised literacy and numeracy assessment scores, parent interviews, teacher questionnaires, school program questionnaires, and students' responses to questionnaires on self-concept and attitudes towards school. In the first study, Anderson (2011) used chi-square analysis to determine whether participation in O&M was associated with performance of mobility activities. The second study involved correlational analysis of factors associated with the development of literacy skills for sighted students and students with VI. In the third study, Anderson (2011) used hierarchical linear regressions to investigate the factors that contribute to higher standardised maths test scores for students with VI.

However, the support for the claims made by Anderson (2011) was not consistent with the degree of certainty and generalisation. The study acknowledged limitations in the analysis because of the use of secondary data where numbers of participants were so limited that data were eliminated or statistical correlations could not be calculated, and where original data were not collected from students themselves, but from observations by

others (Anderson, 2011). In addition, Anderson (2011) added to the rhetoric surrounding O&M learning and teaching content, yet provided no further information towards better understanding the practice of O&M. None of the articles in this literature review deliberated on pedagogical practice or the "how" of O&M learning and teaching.

The research focus of the articles in this literature review remained on measuring visible and quantifiable O&M skills, with the authors only alluding to the less concrete knowledge and skills of O&M learning and teaching, such as self-determination. The analysis of these articles indicates an oratory framing of the practice of O&M learning and teaching. Specifically, the technical knowledge and skills of long-cane travel and efficient-route travel frame the content of not only O&M learning and teaching, but also research on O&M learning and teaching. This oratory reaffirms the circular narrative that O&M learning and teaching is considered only a set of traditional, technical, and quantifiable skills.

Understanding the alignment of O&M learning and teaching with core curricula. Ostensibly, there is consensus in the literature that O&M learning and teaching is a vision-specific addition to schooling for students with VI, requiring specialist programming and intervention. Arguably, O&M learning and teaching is represented in all of the articles as an adjunct to students' core curricula, and not as an inclusion in standard academic curricula. Only Scott (2015) addressed the alignment of O&M skills with the Australian Curriculum. Scott (2015) claimed that a significant outcome of early O&M intervention is the children's ability to use a range of O&M techniques in their daily routines, providing detailed descriptions of functional O&M skills as applied to the Australian Curriculum Early Years Learning Framework (EYLF) (DoE publishing as, DET, 2016). Likewise, Bruce et al. (2015) suggested that effective practices for students with VI are teaching practices that can be applied to whole-class learning and teaching. In contrast, Magalhaes et al. (2014, p. 167) claimed that classroom teachers are unable to contribute to the "proper locomotion" of students or replicate the strategies employed by O&M specialists.

As previously discussed, Scott (2015) studied the development of O&M intervention with children with VI in Australia. She was particularly interested in the perception and

experience of long-cane mobility for young students in early education settings. Scott (2015) employed interpretive techniques—such as individual stories and experiences, semi-structured interviews, children's written stories, and archival video and documents—to study the perception and understanding of O&M in early childhood. The research participants were children, their parents, and their teachers in an Australian early education setting. Scott (2015) attempted to understand the implications of the social interaction and construction of meaning for O&M and long-cane use. She attended to the lived experiences of participants in life-changing epiphany moments by exploring "the perspectives and world views of the children within a specific social and educational context" (Scott, 2015, p. 113) and the long-term significance of early O&M intervention.

In her analysis, Scott drew extensively on the perspectives of children, parents, and teachers to illustrate the findings. In addition to reporting the experiences in the language of the participants, Scott attempted to position herself within the field of study, aiming to be as close as possible to participants. Her self-immersion and self-reflection enabled a "richer and broader view of how the long cane forms part of children's lives" (Scott, 2015, p. 135). This interpretation allowed her to capture perspectives not previously explored in O&M literature, and provided opportunities for the participants to voice their own stories and perspectives. Scott (2015, p. 12) claimed that the interpretive framework enabled a "richer understanding of the influence of O&M in everyday life". Scott (2015) concluded that perspectives of O&M have changed over time with the increased competence of long-cane use by children. In particular, Scott (2015) identified that early O&M intervention facilitates early childhood education learning.

Evaluating Scott's (2015) claims regarding links to the Australian Curriculum is of particular interest to the agenda of this literature review. The main claim in Scott's (2015) study is the introduction of the long cane to young children. Moreover, Scott (2015) alluded to children's behaviours with the long cane as determinants of the Australian Curriculum EYLF. Scott (2015) consistently drew from practice and theoretical literature from the

Australian Curriculum EYLF to support her claims, and specifically discussed learning through O&M.

In a later conference paper, Scott (2017) presented a more direct theoretical link to the "Belonging, Being and Becoming" continuum of the Australian Curriculum ELYF (DoE publishing as DET, 2016). In the conference presentation, Scott (2017) highlighted outcomes from the Australian Curriculum ELYF and theoretically aligned these to possible O&M learning and teaching strategies. Scott (2017) first identified the content of O&M learning and teaching for young children as purposeful and self-initiated movement, and as sensory, conceptual, community, and environmental awareness. Scott (2017) then provided a range of practical teaching strategies addressing outcomes from the EYLF. For example, Scott (2017) suggested that developing concept awareness by encouraging a child with VI to reach for a noise-making toy aligns with the EYLF standard of "Developing a Sense of Identity" (DoE publishing as, DET, 2016), and the associated sub-outcome of "children feel safe, secure and supported" (Scott, 2017, p. 16). In another example, Scott (2017, p. 19) suggested that allowing children with VI to move and make discoveries independently aligns with the EYLF sub-outcome of "children develop their emerging autonomy, interdependence, resilience and sense of agency". Scott (2017) concluded by advocating that O&M strategies require daily implementation across all environments and routines.

Gaps in the Literature

Inspired by decades of problematic learning outcomes for students with VI, this literature review has focused on defining O&M learning and teaching, and identifying the alignment of O&M learning and teaching with the Australian Curriculum. There are complexities in researching a low-incidence and heterogeneous population, as among students with VI. The limited studies and lack of comparative or replicated studies are a direct consequence of such diversity. This proviso notwithstanding, there appears to be consensus that O&M learning and teaching is an important disability-specific skill for students with VI. However, although learning and development for students with VI encompasses a broad range of concepts and learning areas (Downey, 2017), this is not reflected in the literature on O&M

learning and teaching. In fact, the research literature regarding the practice of O&M learning and teaching is mostly targeted towards the development of technical O&M skills, and not, as Scott (2015) aptly identified, focused on how learning occurs through O&M.

The question of the alignment of O&M learning and teaching with the Australian Curriculum remains unanswered. Nevertheless, there is no shortage of theoretical and practical suggestions to link aspects of the general curricula with O&M (Gower, 2017; Scott, 2017, 2015; Smith, 2006). However, without much convincing evidence to support these claims, and with the pervasive rhetoric around formal O&M practices (see the critical literature review in this chapter), learning through O&M remains esoteric. There is evidently still much scope for research into these questions.

Ongoing in-depth investigation of students, their parents and teachers, and O&M specialists working in the Australian Curriculum would be of particular benefit in addressing the gap in the literature. Research is required to investigate the ways in which robust O&M practice is embedded in the core Australian Curriculum and how O&M may influence academic outcomes for students with VI. Until further research supports the complexity of O&M learning and teaching, and subsequent alignment with core curricula, education systems may have to take the advice of Bell (2017) and embrace and enfold O&M learning and teaching into the curriculum. Finally, further investigation is also required into pedagogical approaches encompassing learning through O&M.

Through this literature review and analysis, I have been able to reflect on the different philosophical underpinnings of the circular narrative of O&M learning and teaching. I began teaching O&M to facilitate people with VI to become self-efficacious and empowered. I still believe in those original principles that led me to O&M learning and teaching: self-efficacy, determination, empowerment, equal opportunity, and access for students with VI. I concur with Bruner's explanation that the aim of education should be to create autonomous learners (McLeod, 2008). I consider O&M learning and teaching a plausible positive option in facilitating Bruner's aim of education for students with VI. Therefore, through an alternative

research methodology, I propose O&M learning and teaching as one plausible option in providing educators with opportunities to improve learning outcomes for students with VI.

Chapter 4: Methodology and Methods

In this chapter, I detail the research methodology and methods. I chose to follow an interpretivist research methodology. The resultant emergent design is built on a hermeneutic phenomenological framework that enables me, as an insider researcher, to use two research tools—namely, narrative inquiry and autoethnography. I chose this design because it provides valuable opportunities to understand the lived experience from the perspective of those who live it. I also add another layer of strategies to check for confirming and disconfirming evidence by consulting with a panel of experts.

My research focus areas are to explore the pedagogical practices of O&M with three female primary school students with VI, and to examine these practices for possible alignment with the Australian Curriculum. The research design offers pertinent prospects for me to conduct research in which particular qualitative, thick, context-rich descriptions of pedagogical practices in O&M can be obtained and subjected to careful in-depth critical analysis. This research creates occasions for me to attempt to disrupt the underlying vision-based assumptions of most mainstream research. Had I followed a positivist research design, these opportunities would not have been available.

I felt it was necessary to unsettle vision-based assumptions when conducting this research because, currently, most students with VI attend their local community school, immersed in a visual learning environment, with little opportunity to learn in non-visual ways. As argued previously, these supposed inclusive education practices are not adequately meeting the learning needs of all Queensland students, as evidenced by the equality of opportunities representation and outcome measures reported in the Queensland Deloitte review (DoE publishing as DET, 2017). Compared with sighted peers, USA studies highlighted that students with VI are substantially underperforming in literacy and numeracy, have reduced levels of self-determination, and leave school with lower prospects for gainful employment (Dignan, 2014; Lee et al., 2014).

O&M is a highly specialised multidisciplinary form of instruction that is founded on theories of the influence of VI on childhood development (Amiez et al., 2015) and the

subsequent inference that children with VI must learn differently than their sighted peers because they have a VI that restricts their ability to learn visually (Pogrund & Fazzi, 2010). Acknowledging and tailoring learning and teaching to the substantially different learning strategies that students with VI adopt may offer a plausible option to facilitate improvement in learning outcomes for students with VI—hence this research.

To explain and justify my research design, I delve into the history of disability research. To further outline my reasoning for the use of interpretive research, I draw on Creswell's (2013) classification of philosophical assumptions. I then discuss emergent research, hermeneutic phenomenology, narrative inquiry, autoethnography, and insider researcher, and expound on my use of vignettes. Following this, I consider the possible strengths and limitations of the design, and then proceed to outline the research methods—particularly participant recruitment and data collection. The remainder of the chapter details the analysis of the data.

Disability

The World Health Organisation (WHO, 2017, para, 1) defined disability as an "umbrella term, covering impairments, activity limitations, and participation restrictions", and impairment as a problem in body function or structure. This definition signals a significant shift from historical perspectives of disability and impairment, and consequently disability research. For Linton (1998, p. 528), this "distinction between the terms 'disability', and 'impairment' has benefitted the development of scholarship on disability, and has benefitted disabled people". As Creswell (2013) explained, disability research has moved through three stages of development, from the medical model to the social construction model and then to the critical research model.

Radical challenges to the socio-medical model of disability forged disability research as a more discrete area (Barnes & Mercer, 1997). Historically, the social model of disability focused on the social initiatives and interventions necessary to resolve the disability, whereas the medical model focused primarily on normality of function. The fact that disability is viewed as an individual problem has been the central criticism of the medical model of

research. For Smith-Chandler and Swart (2014, p. 420), “individuals with disabilities continue to experience exclusion from mainstream contexts and stereotypical constructions of disability as an inferior status”. They argued that the medical model fails to acknowledge the role the social world plays in producing disability. As Oliver (1992) stated, the medical model potentially reinforces the notion of disability as an individual’s problem, rather than a collective concern.

There has also been much criticism attributed to the socio-medical models of disability research. For Oliver (1992), the socio-medical model embodies the view that the impairment is the cause of a person’s disability. According to Linton (1998, p. 526), this construction of disability as a problem interferes with the conception of “disability as an issue, an idea, a metaphor, a phenomenon, a culture and a construction”. According to Barnes and Mercer (1997), disability researchers were historically labelled as parasites, pursuing their own interests, and criticised for marginalising the concerns of people with disabilities. Disability was studied as a “personal tragedy rather than a social oppression” (Barnes & Mercer, 1997, p. 3). Linton (1998) argued that the problem was compounded by the absence and underrepresentation of the perspectives of the people with the disability. Oliver (1992, p. 106) further asserted that disability research has been perceived as a violation of experience, as irrelevant to the needs of the people with disabilities, and as ultimately “failing to improve the quality of life”.

The socio-medical model of disability dominated my dog guide and O&M instructor practices in the 1980s. In those days, the medical and visual diagnosis defined the person with a VI, and O&M was perceived and described as intervention and rehabilitation. The definition of intervention and rehabilitation implies behaviour or physicality in need of fixing or termination. This dominant mantra of O&M as intervention, instruction, therapy, and rehabilitation persists in O&M research. For example, Scott (2015) referred to her O&M lessons as intervention, and Lahav et al. (2015b) discussed their virtual O&M training in terms of rehabilitation. These perceptions linger from the era of the medical model and continue to uphold the sighted misconception of VI as a deficit, leaving many people with VI

in an “endless cycle of dependency, passivity, and indignity” (World Access for the Blind, 2018, para. 6). Therefore, it was important for me to select a research design that endorsed self-efficacy.

Interpretive and inclusive research is intended to be more respectful of disability as a dimension of human difference. This approach involves data collection and reporting in ways that are respectful of power relationships (Creswell, 2013). For Walmsley (2004), this includes active involvement of the participants with disabilities, with the researcher assuming the role of supporter and enquirer, and the person with a disability assuming the role of expert. In other words, interpretive and inclusive research includes reciprocity, and the underlying aim must be for the researcher to assist people with disabilities to empower themselves (Oliver, 1992). There is a requirement of ethical intent in inclusive research to directly support “the self-actualisation process for people with disabilities” (Block & Weatherford, 2013, p. 499). I adopt these aspirations of ethical intent in the design and conduct of this research.

Interpretive Research

I chose a qualitative and interpretive research design for this project despite the overwhelming proportion of quantitative research designs present in the field of O&M (see Chapter 3). I implemented this design because I believe there are a number of philosophical perspectives that may be effective in helping the study of O&M learning and teaching. For example, despite the positivist’s intention to emulate the natural sciences (Kim & Emerson, 2014), some contemporary research clearly owes a debt to the interpretivist interest (Scott, 2015). Interpretivist research adds to the richness of the research repertoire that would otherwise not be available because, according to Creswell (2013, p. 21), philosophical and methodological assumptions “delineate the way of seeing and researching the world”. These enquiries include the role of values or axiology, understanding of reality or epistemology, and nature of reality or ontology. Therefore, I begin by exploring the axiological assumptions behind the discipline of O&M.

Axiological assumptions are concerned with “basic moral and aesthetic judgements about appropriate conduct and quality of life” (Alvesson, 2000, p. 23). These assumptions reflect the values and intentions that researchers bring to their work. In Chapter 3, the literature review, I illustrated the historical, yet pervasive, perception of the O&M phenomenon, and the alignment of this traditional interpretation of O&M with positivist research. I previously highlighted the importance of disability-specific learning, such as O&M, for students with VI to facilitate developmental and incidental learning and growth in self-agency. In adopting Bronfenbrenner’s bioecological model, I identify the complex systems affecting the lifelong outcomes for students with VI, and the multiple contexts pertinent to researching O&M. I believe these foundational considerations in the O&M learning and teaching research field better align with interpretivist values of multiple realities, given that the experience of O&M is vastly different for each individual.

Epistemological assumptions are concerned with the “criteria by which valid knowledge is constructed and evaluated” (Orlikowski & Baroudi, 2011, p. 9). According to Stone (2012), these assumptions include beliefs about the justification, certainty, authority, and form of knowledge. In the literature review in Chapter 2, I highlighted the overarching positivist perspective surrounding O&M research. For example, positivist O&M researchers of the built environment, Guth, Long, Emerson, Ponchillia, and Ashmead (2013) and Merabet and Sanchez (2016) assumed causality by statistical association. Stated another way, they assumed that the testing, measuring and analysis of numerical data and statistical procedures of road crossing decisions offer a valid, predictable, and generalisable theory for all travellers with VI. In contrast, interpretive and critical researchers endorse the belief that there is no single reality, and include contextual and cultural participant interpretations alongside descriptive data (Christie & Fleischer, 2011; Creswell, 2013; Lincoln & Guba, 1985).

Ontological assumptions are concerned with the nature, reality, and existence of the phenomena (Lewis-Beck, 2004). These assumptions include beliefs about human rationality and social relations (Orlikowski & Baroudi, 2011). For example, according to Ambrose-Zaken

(2015), O&M researchers targeting blindfolded sighted subjects assume that the results can be generalised to hypotheses about individuals who are visually impaired. Quantitative research assumes causality between events, relations and variables, and accepts an ordered universe comprising discrete and observable events (Lewis-Beck, 2004). Subscribing to this view, O&M researchers Ahmetovic et al. (2016) offered Bluetooth navigation assistance and wayfinding technology for travel in unfamiliar areas to people with VI. These researchers accepted hegemony within the cultural and social complexity of travel without vision, and assumed a singular measurement for all people with VI.

In contrast, qualitative interpretive research findings are contextual to the environment and to the moment of O&M learning at a particular point in time. Interpretivism assumes a reality that is multiple and socially constructed, with human experience a process of ongoing interpretation that cannot be dissected into parts (Pagliano, 1999). Therefore, interpretive researchers openly "discuss values that shape the narrative", honour and negotiate individual values, and emphasise the diversity of values (Creswell, 2013, p. 21).

Methodological assumptions bring to bear the methods of gathering and analysing data and the overall intent of the research. That is, methodological assumptions inform the role of theory and the sample, setting, data collection instruments, data analysis procedures, research design, and research outcomes (Lincoln & Guba, 1985). However, the quest for universal laws within O&M has traditionally led to oversight of the "historical and contextual conditions" (Orlikowski & Baroudi, 2011, p. 64). As highlighted in Chapters 1 and 2, researching O&M learning and teaching is intrinsically embedded in a multitude of social, political, and cultural contexts. Neglecting these contexts may reveal an incomplete picture of the O&M phenomena, that is, travel in a visual world from a non-visual perspective (Ball & Nicolle, 2015).

Hermeneutic Phenomenology

> The range of what we think and do is limited by what we fail to notice. And because we fail to notice, there is little we can do to change; until we notice how failing to notice shapes our thoughts and deeds. (Laing, 1972, p. 24)

Phenomenology is the study of lived experience, while hermeneutics is the art and science of interpretation and meaning making. Thus, hermeneutic phenomenology is the study of "experience together with its meanings" (Friesen, Henriksson, & Saevi, 2012). Hermeneutic phenomenology is derived from the philosophical conceptualisations of celebrated thinkers, such as Heidegger, Merleau-Ponty, and Sarte (Friesen et al., 2012), and was defined by Van Manen (1990) as an openness to everyday events. Researchers employing hermeneutic phenomenology acknowledge the interconnection between research and researchers. Through hermeneutic phenomenology, the researcher's own subjective understandings are embraced as introspection, reflection, and retrospection of rich descriptions of the concrete lived experiences.

Thus, hermeneutic phenomenology affords different knowledge and deeper understandings of pedagogical practice. Hermeneutic phenomenology illuminates "aspects of pedagogical practice often overlooked in research but deeply felt by teachers" (Friesen et al., 2012, p. 8). In other words, hermeneutic phenomenology bridges the gap between the statements in educational documents about what should occur, and the situations that actually occur in everyday pedagogical practice. As a result, hermeneutic phenomenology is often undertaken by educational scholars who have strong roots in their own discipline (Friesen et al., 2012). Thus, I embraced hermeneutic phenomenology as the foundational methodology in this research. The reflective, introspective and retrospective tenets of hermeneutic phenomenology afforded me the opportunity to notice characteristics of O&M pedagogy that I may otherwise have failed to see.

Narrative Inquiry

> You've got to knock off trying to imagine stories and write from life. You've got to listen to people talk. Take notes of their conversation—the way they form their sentences, the slang they use. Then you describe them in your writing. You weave a story around a known person or persons […] so starting writing stories about people you have met. When you want to write about a cart, watch a milkman going past. (Alan Marshall, personal communication, July 5, 1978)

Narrative inquiry has its roots in anthropology, psychology, literature, history, anthropology, sociology, sociolinguistics and education (Clandinin & Connelly, 2000). Many classical thinkers, from Socrates to Bruner, have influenced narrative inquiry either directly or indirectly. Collectively narrative inquiry arose through Socrates's search for reality, truth, and understanding; Weber's "*verstehen*"; Dewey's educational pedagogy, pragmatism, and reflective practice; Sartre's phenomenology; Foucault's discourse analysis; Derrida's theories on deconstruction; Geertz's notion of thick description; Chatman's concept of narrative theory; Lyotard's principles on grand narrative; and Bruner's ideas on educational pedagogy and autonomous learners (Clandinin & Connelly, 2000).

The very configuration of narrative inquiry enables the participants to tell their stories in ways that open up new possibilities for understanding, wisdom, and transformation. Narrative inquiry permits exploration into the way teachers' values and beliefs are perceived to influence their students' experience of O&M. Narrative inquiry is a unique research tool in terms of the potential to facilitate exploration of the values, attitudes, beliefs, social systems, and structures that relate to O&M learning and teaching. For Scott (2015), narrative inquiry challenges conventional ways of telling the O&M story, and enables the reader to create connections and meanings to broader sociocultural constructs.

Through narrative inquiry, the reader makes connections to broader contexts and to their own experiences. Clandinin and Connelly (2000) claimed that the epitome of narrative inquiry is the relationship among reader, author, text, and life, with the starting point for narrative inquiry being the researcher's own narrative experience. This perspective as proposed by Clandinin and Connelly (2000) links narrative inquiry with autoethnography—my second research tool. Through narrative inquiry, the knower and known are inseparable. Dwyer (2014, p. 5) contended that:

> Stories are inter-subjective, created through a dialogic process that takes place between the teller and the listener. Stories are not ready-made: they are shaped by the process of being told, and by the relationship between those telling and listening. In the case of narrative research, the reader then

becomes part of this process, using the lens of his or her own experience to interpret the stories composed by the researcher and participants.

I first discovered the power of narrative as a classroom teacher for students with differentiated learning needs, where mandatory quantitative data collection grossly under-represented the students' learning experiences. The obligatory educational statistical measurement defining the expected curriculum repertoire was in sharp contrast to the fluctuating adversity and varied individual experiences of the students, thereby defining my daily pedagogical practices and the students' learning outcomes. Maintaining a professional narrative journal throughout the years with these students enabled me greater opportunity to value individual student learning. Overall, my learnings from the participants could be suitably emphasised using narrative inquiry.

Through narrative inquiry, the understanding of experience is continual and interactive, particularly within teaching and learning (Campbell, McNamra, & Gilroy, 2004). By storying each new O&M learning and teaching experience, I was able to gain coherent notions of who I am, where I am going, what I believe, what I want, and where I belong (Bolton, 2006) within the spectrum of O&M and educational pedagogy. Through narrative inquiry, I could "illustrate with experiences the issue … socially, culturally and politically" (Creswell, 2013, p. 103). Narrative inquiry provided the existential conditions to understand the sociocultural identities of students with VI, and the interconnection of time, text, and space to O&M learning and teaching.

I envisaged narrative inquiry as an ongoing process of understanding, thereby supplying me with opportunities for reflective examination of O&M learning and teaching through the use of multiple storytelling and poetic genres. A thorough narrative self-reflection permitted me to interpret my professional identity and boundaries, and to challenge and question my underlying assumptions of the nature of the social disability of VI. In so doing, narrative inquiry provided me with openness and greater clarity to reinterpret the practice of O&M learning and teaching. Through narrative inquiry, I have been able to investigate my own and others' understandings and experiences of O&M within the context of the Australian

Curriculum. For Campbell et al. (2004, p. 87), “reflective writing is a major tool for a teacher researcher who wishes to investigate and research practice with a view to improving and refining his or her practice”.

In the course of this study, I used the lens of my own experience to explore the stories enacted by the participants within the O&M lessons. I shared my writing with my peers, colleagues, and O&M specialist panel to build other meanings and to encourage further retellings. Hannigan (2014, p. 5) identified the importance of locating “the small, private stories or micro-narratives that individuals tell about their experiences or phenomena”, which can “contrast or challenge the larger stories or meta-narratives of societies and cultures that we take for granted”. Through narrative inquiry, I have explored and documented the complex arena in which O&M teachers and students learn. I anticipated that narrative inquiry would enable me to imagine O&M learning and teaching in terms of contemporary socio-political and socioeconomic events, within the dynamics of educational institutions, and as a construct of the self-efficacy of students with VI. I concur with Bolton (2006, p. 205), who stated:

> We and our students, must be encouraged to examine our story-making processes critically: to create and re-create fresh accounts of our lives from different perspectives, and in different modes, and to elicit and listen to the responses of peers.

Autoethnography

> Once someone said to Stravinsky, a great composer, “Maestro, where do you get your ideas? In the bath? Shaving? Or, exploring the woods in the moonlight?” And he responded, “At the piano”. (Dahl, 1988, p. 411)

Congruent with the principles of narrative inquiry, autoethnography is similarly representative of the interpretive research paradigm, where the known and knower relationship is inseparable and interactive (Glesne & Peshkin, 1992). Autoethnography has its roots partly in autobiography, anthropology, psychology, sociology, and ethnography (Ellis et al., 2008). Autoethnography specifically arose through many disciplines, including the fields of disability

and education (Doloriet & Sambrook, 2012; Scott, 2015). The term “autoethnography” is derived from the entomology of the three root words—“auto”, “ethnos”, and “graphy”—specifically interpreted as the representation of the self within a culture (Ellis & Bochner, 2006).

Autoethnography is conceptualised as a personal story within a larger cultural context (Creswell, 2013). This was further elaborated by Muncey (2010), who described autoethnography as an approach capable of reaching broader audiences, assisting reflection and transformation in readers, and creating new understandings in new ways. I hoped that the process of intertwining both narrative and autoethnography would help me create a more rigorous and robust research design, and more deeply interrogate the phenomenon of O&M learning and teaching within the Australian educational context.

Autoethnography is a blending of theory and analysis within the presentation of a lived experience, multiple voices, conversations and genres (Ellis & Bochner, 2006). For Ellis (2008), autoethnography transforms and changes paradigms and spaces and allows for many different approaches, contents, and ways of telling. Anderson (2006, p. 382) similarly argued that autoethnography permits “the self-conscious introspection guided by a desire to better understand both self and others through examining one’s actions and perceptions in reference to and dialogue with those of others”. For this reason, autoethnography enabled me to apply the acquired knowledge of the specialised context and language used in O&M; value first-hand the distinctive learning that occurs in an O&M space; and, most critically, incorporate the unique and intensive daily application of O&M by the students with VI and my colleagues.

Autoethnography challenges the “me” and “I” (Hannigan (2014). Through autoethnography, I can return to times and places, and write in first person. In this manner, I can create new understandings of “me” during different periods of my life that have helped shape my O&M professional practices and insights. By writing from within the phenomena of O&M learning and teaching, I can examine past cultures and subcultures, and come to

understand assumptions about VI and disability that I may bring to my professional practice. Likewise, I can challenge the dominant discourse of O&M research through my own storying, construction, and interpretation of my professional practice. As Richards (2016) reasoned, autoethnography can display changes in the researcher's identity within a subculture and context. In particular, I can investigate the "why" and "how" of my approach to O&M as an insider researcher, while simultaneously creating and constructing new understandings of the culture of O&M learning and teaching.

Insider Participant Researcher

An insider researcher is the researcher as an instrument in the collection of data, with the researcher playing an obvious role in all stages of the research (Brodsky, 2008). For Kirpitchenko and Voloder (2014, p. 4), all the steps of the research project, from "conceiving, conducting and recording research to the writing and creating of knowledge … are influenced by the researcher's point of inspection". My rationale as an insider researcher is to create positive change in a profession in which I have significantly invested over the decades, and to expose the many understandings of O&M learning and teaching that are often closed to outsiders.

As an insider researcher, I contribute expertise and knowledge, thereby enabling deeper awareness of issues in the field of O&M learning and teaching, and, through this underpinning knowledge, am able to contribute to the development of new understandings. I already had a connection with the participants, having worked directly for several years with the students with VI who were involved in the study. I had a similar connection with the teachers, parents, and school communities of these students. Moreover, I know the panel of specialists both professionally and personally. Kirpitchenko and Voloder (2014) discussed the benefits of stronger rapport and trusting relationships when recruiting through known social partnerships. As an insider researcher, I planned to use myself as a resource "to understand others' experience, to consciously understand my own experience, and to utilise my experiential self to inform the study" (Kirpitchenko & Voloder, 2014, p. 27).

According to Kirpitchenko and Voloder (2014, p. 11), “autoethnography is a method of insider research that draws upon the researcher’s experience to a greater degree in the course of data analysis and in the presentation of results”. By reflecting on my current practice, I can influence and initiate practical action in the professional field. By “conducting research that affects one’s life, researchers can directly draw upon their own thoughts and experiences as ethnographic tools” (Kirpitchenko & Voloder, 2014, p. 11). Moreover, Anderson (2006) suggested that incorporating self-narrative or personal anecdotes into academic writing characterises the autoethnographic approach. Therefore, I planned to draw on the autoethnographic approach as a strategy to negotiate the challenge of “incorporating personal reflection” and “utilising self to understand others” (Voloder, 2008, p. 28). One way to achieve this was through the use of vignettes.

Vignettes

Vignettes are brief evocative descriptions that are well suited to autoethnography (Denzin & Lincoln, 2002). According to Bochner and Ellis (2000, p. 733), autoethnographic vignettes bring “life to research and research to life”. Vignettes connect the “personal to the cultural” and connect the “researcher’s own experience” to “identity and positionality” (Bochner & Ellis, 2000, p. 739). Moreover, as explained by Ellis, Adams and Bochner (2010, p. 9), vignettes enable personal experience to “illustrate facets of cultural experience”, thereby making “characteristics of a culture familiar for insiders and outsiders”. Aiwa (2013, p. 25) used autoethnography in his study, “The Education of Young People with Vision Impairment in Papua New Guinea”, to help him “better understand [his] own educational experience and development” through his Papua New Guinean culture. In her study, “Giving My Heart a Voice”, Neyman (2011, p. 43) used vignettes to indicate that her encounters as a teacher and researcher “affect” and were affected by her “most basic life experiences”.

I aimed to connect myself to readers through the use of vignettes, and to connect readers to the social-cultural constructs innate to the unique field of O&M learning and teaching. My choice and use of vignettes resonated most with those of Motzafi-Haller (1997, p. 217), who claimed to offer:

> This narrative of self-understanding, this limited and temporal effort of making sense of the flow of my professional life, not for the dubious joy of making myself the center of attention, but because I hope that through the telling of my lived direct experience, I can tell best about existing power dynamics and the complex process of domination.

Methods

In this section, I describe the research methods, including the design, setting, participant selection, data collection tools, and data analysis. I begin by identifying the emergent research design, and then proceed to delineating the participant recruitment and data collection tools. I then introduce the ethical considerations when researching with students with VI, and outline the necessary confidentiality and consent procedures required by the James Cook University (JCU) Human Research Ethics Committee. Thereafter, I provide an explanation of the data analysis approaches. The chapter concludes with a consideration of bias, validity, and triangulation, and then a description of the strengths and weaknesses of the research methodology and methods.

Emergent research design.

> The best laid schemes o' mice an' men,
> gang aft a-gley,
> an lea'e us nought but grief and pain (Robert Burns Country, 2011).

In this research, I applied an emergent research design in line with an interpretive research methodology. This enabled the progress of the research to be shaped by the research process. It also means that this research project was unique. According to Morgan (2008), an emergent research design allows for evolving scenarios and endorses tentative statements regarding participants, data collection, and analysis. Hesse-Biber and Leavy (2008), also suggest that emergent designs allow for the modifying and shaping of the research process because of changing social contexts over time. The evolving social contexts, narratives, interviews, self-reflections and spaces in the interconnected cultures of O&M learning and teaching, education practices and my professional role in this study could

eventually lead to variations in participant recruitment and participation and interview structures.

To blend my role as both practitioner and researcher, I continually evaluated, re-evaluated, and expanded my practice as new understandings emerged from the research. In addition, constantly varying environments, environmental conditions, and student wellbeing, further informed the O&M learning and teaching. Astutely responding to unfolding situations involves an emergent research design that is sufficiently flexible to facilitate the expansion or reconfiguration of data collection and analysis techniques when required (Morgan, 2008; Schwandt, 2007).

Participants

The participants for this research included myself as an insider researcher, three primary school–aged students with VI, a primary school teacher, a parent, and a five-member panel of specialists from within the field of VI and O&M. Apart from the researcher, all participants were given pseudonyms to help protect their anonymity. The following subsection provides a description of these participants. The respective recruitment methods follow.

Selection of the students.

In qualitative research, the emphasis is on selecting participants who will offer the widest possible range of data. Unfortunately, this was not possible in this research. The difficulties of obtaining data from low-incidence and heterogeneous populations, such as students with VI, are well documented in the literature (Douglas et al., 2009; Lampert, 2016; Warren, 1994). The numbers of children with VI being supported by the Queensland DoE are low (DoE publishing as DET, 2017), with extreme geographical distribution within the Far North Queensland and North Queensland regions. Therefore, I concur with Hatton, Bailey, Burchinal, and Ferrell (1997, p. 789), who suggested that “low incidence rates, geographic dispersion, within-group heterogeneity, and frequent co-occurrence with other disabilities” are among the factors that render research with children with VI extremely difficult. The combination of these factors leaves O&M specialists with “limited resources that meet the rigorous standard of having the support of research-based evidence” (Anderson, 2011, p. 6).

Given that this research was highly specialised and conducted within a low-incidence population, I initially believed that a broad range of interactions with students with VI during O&M lessons would be required to meet the aims of the study. Therefore, the selected students with VI were initially required to meet several criteria, including:

- Queensland DoE-enrolled students located centrally within the Far North Queensland and North Queensland regions (however, I also wished to involve at least one student from the central Brisbane caseload of another DoE O&M teacher)
- students with a documented O&M goal within their Queensland DoE student support plan or personalised learning plan
- students on my current caseload
- students aged between 12 and 17 years.

The conditions regarding assent and consent when working with children were addressed by ensuring there were ethical recruitment procedures, requiring written information and consent at three levels prior to student participation. The three consent levels were the school principal, then the teacher and parent, and finally the student. The selection process was shaped by Harcourt and Conroy (2005, p. 576), who argued that children conditioned to a classroom climate of obedience "appear to be disempowered finding it challenging to decline the researcher's request". In consideration of the additional trust relationship inherent in O&M learning and teaching, and to meet the JCU Experimentation Ethics Review Committee approval and Queensland DoE research services ethics approval, student consent was required to be obtained through a third party, such as a guidance officer or school chaplain.

Initially, a possible 10 students from six secondary schools in the North and Far North Queensland DoE regions, as well as a number of students within the Brisbane Central region, were identified as meeting the criteria for selection. A preliminary email was sent to the relevant secondary schools at the start of the school year, outlining the research and introducing me, with an information and consent form supplied in a further email after two

weeks. One follow-up email was provided three weeks later. Of these six schools, only one school principal replied. However, the students from this school were later removed from my caseload shortly after and prior to the data collection phase. With a nil uptake of participants, the emergent research design allowed for the expansion of the selection criteria. Therefore, a letter of introduction, information and consent forms were emailed to all schools with students with VI on my caseload within the North and Far North Queensland DoE region, and one follow-up email was provided two weeks later. Of the two consenting schools, five students with VI and their parents and guardians, four teachers, and four paraprofessionals (teacher aides) were available for recruitment. Of these, only three students, one teacher, and one parent consented to participate in the research.

To summarise, the resulting student participants met the following criteria:

- Queensland DoE-enrolled students located centrally in the Far North Queensland and North Queensland region
- students with a documented O&M goal in their Queensland DoE student support plan or personalised learning plan
- students on my current caseload.

Despite extensive planning, communication, and collaboration, it was not possible to obtain a larger number of student participants nor a more diverse representation of gender. Therefore, I decided to adopt a “less is more” approach to the research and proceed with the three female students who were on my caseload.

The students.

The participants were three female primary school students with VI—two in the North Queensland DoE region and one from the Far North Queensland DoE region. The students represented Years 1, 3 and 6 in their schooling, and ranged in age from six to 11 years. They were currently receiving O&M teacher services from me, and had been in receipt of services from me for at least three years. Each student had a different O&M program and a different O&M learning goal. Two of the students also received support from Non State

Schools Organisation (NSO) O&M specialists and National Disability Insurance Scheme O&M service providers. All students additionally received NSO twice-yearly outreach visits for occupational therapy, physiotherapy, and assistive technology. In addition, the students were in receipt of regular (weekly) Queensland DoE advisory teacher services and intra-school special education support. The students were identified as having significant VI with congenital and deteriorating vision loss by the Queensland DoE state-wide verifier (the person who determines educational support needs). The students in this study did not have any additional disabilities or diagnosis.

I will now provide a thick narrative description of these students, their functional vision capabilities, and their subsequent O&M programs. Each student has been given a pseudonym as have all Queensland DoE locations. These vignettes are important because they provide valuable context for the O&M learning and teaching, which will be reported in Chapter 5.

Josie.

Josie is aged 11 years and in her final year of primary school. She has congenital retinoblastoma, a prosthetic right eye, and can see at six metres what I can see at 48 metres with her left eye. She has a long cane permanently tucked into her school bag, although I have never seen her use it. She is adept at using an iPad to access most of her in-class curriculum. I started working with Josie five years ago, when she was in Year 1, when it had become obvious to her school teachers that she was experiencing difficulties in the playground maintaining contact with her friends.

Functionally, Josie is independently able to perceive, locate, and discriminate large familiar environmental structures, such as buildings, rooflines, poles and doorways, and other visual features in familiar, quiet, and constant environments at four metres. She can identify small one- to two-centimetre familiar objects, and 24-point printed writing at five centimetres within familiar school and classroom spaces. She can perceive, attend, localise, and discriminate work tasks, objects, environmental features, social spaces, and events in the familiar class and school areas within a one- to two-metre range. Josie does have some

difficulties locating, tracking, and discriminating a range of visual features in unfamiliar and congested environments, especially when judging and perceiving gradient changes, figure background, and depth and distance of objects.

This is Josie's final year of primary school. As such, over 12 months ago, as a shy 10-year-old, Josie commenced transition as part of her O&M program to her new high school—one of the largest high schools outside the Brisbane metropolitan area. Her O&M program consists of travelling from her primary school to the new high school twice weekly to explore the social and academic spaces of the high school environment.

Kelly.

Kelly is aged eight years and in Year 3 in the Far North Queensland DoE region. She has congenital retinopathy of prematurity and can see with her right eye at six metres what I can see at 120 metres. She has more vision in her left eye, being able to see at six metres what I can see at 48 metres. Kelly can see 36-point printed writing at five centimetres within the familiar school and classroom spaces. Kelly is similarly adept at using her iPad and closed-circuit television to access her classroom curriculum content.

Functionally, Kelly is independently able to perceive, locate, and discriminate large familiar environmental structures, such as buildings, rooflines, poles, and doorways in familiar, quiet, and constant environments at four metres. Kelly is able to locate and discriminate small objects at five centimetres within the familiar school and classroom spaces. She can identify work tasks, objects, and environmental features within a one-metre range. Kelly has some difficulties in unfamiliar and congested environments; in areas of poor illumination, high glare and poor contrast; and when judging and perceiving gradient change, depth and distance of objects, and environments.

I started working with Kelly when she was in kindergarten. Kelly's O&M program involves exploration of her school environment. The program essentially involves developing her confidence in her ability to interpret and understand the environment, yet also includes exploration of the broader environment outside of the school, and road crossing awareness. Kelly is a lover of flowers and pretty objects, and our O&M lessons invariably end up in and

around garden beds and collecting flowers for gifting to her mother. The school herb garden, with its multitude of flowers at various times of the year, is always Kelly's favourite. As a student in Far North Queensland, Kelly met me three times a term, with the expectation that the school and supporting advisory teacher service would continue the program in my absence.

Annie.

Annie is aged six years and this is her second year at school. Annie has a congenital VI that is yet undiagnosed. Annie can see at six metres what I can see at 120 metres, and can see 48-point printed writing at five centimetres. She is learning to navigate the closed-circuit television, iPad, and range of magnifiers that clutter her desk. Annie loves all things pink and sparkly. Her favourite pastime is dancing, and she often chooses skipping as her preferred mode of movement. Annie can detect large well-contrasted familiar objects, such as building structures at five metres, and small objects at five centimetres. However, she needs to be within 50 cm to locate environmental features, social spaces, friends, and pictures. Annie has difficulties in poorly illuminated or bright glare environments with changes in gradients, and in congested and unfamiliar environments.

Annie's program is very similar to Kelly's, as it involves exploration of the spaces of the school environment, although the main focus of Annie's O&M program is social skill development, especially for finding friends and sustaining play. For Annie, when her peers play tag or change location, they only have to move beyond one metre and she has lost them. Towards the end of the semester, the visiting NSO O&M specialist provided Annie with a long cane and recommended she commence braille. The introduction of the long cane significantly altered the focus of Annie's O&M program, while the introduction of braille significantly altered the available class time for specialised O&M lessons. The introduction of the long cane created numerous difficulties for school staff and for Annie in understanding the now very different O&M lessons from two O&M specialists—that is, the NSO O&M specialist and me. To alleviate stress for the school support staff, my program was placed on hold for the remainder of the year.

Parents and teachers.

The Queensland DoE standards for ethical research required principal consent prior to approaching staff, parents, or students to participate in the project. Unfortunately, the number of potential teachers and parents was significantly reduced when only two school principals indicated interest in participating. In addition, the JCU Human Research Ethics Committee required the school chaplains to act as a third party to ensure there were no issues of possible power and coercion. A meeting with each school chaplain was completed and an overview of the research presented. The school chaplain then individually handed hardcopy letters of introduction, information, and consent forms to the respective teachers and parents. Six parents, four teachers, and four paraprofessionals—that is, 14 potential adults—were subsequently invited to participate in the research. One repeat of the information was provided two weeks later. Of the two schools, only one teacher (Donna) and one parent (identified as Geoff) consented to participate.

Panel of specialists.

Delphi method.

According to Charlton (2011), the Delphi method involves experts being included in the research as participants. These experts are invited to comment on a subject or set of opinions by the facilitating researcher. Charlton (2011, p. 2) stated that the “opinions are based on participants’ personal knowledge and experience”, with panel members remaining anonymous to each other (Childs, Mcleod, & Hardiman, 2014). According to Childs et al. (2014), there are normally several rounds of questioning, with the panel feeding back to the researcher during each stage of the analysis of results. In this research, this process included developing themes and feeding back to the panel as input for the second and subsequent rounds. As stated by Mckillop (2011, p. 6), “the interaction of participants provides a unique source of information and serves to check the validity of one another's reactions”.

The panel members.

Following advice from the JCU Human Research Ethics Committee, I appropriated the Delphi method to establish a specialist panel of experts. A purposefully selected panel of specialists was recruited to assist with validity, trustworthiness, and triangulation of data, as per the advice of the ethics committee. According to Denzin and Lincoln (1994), purposive sampling is recruitment of participants who exhibit factors of importance to the research, are information rich, and exemplify characteristics of particular interest and relevance. The panel members were specifically chosen for their professional contribution to and specialist knowledge within the area of VI. In addition, the recruitment of the participants for the panel of specialists involved pertinent adult participant selection using a cascade technique from known contacts (Childs et al., 2014). If the first contacted person was unavailable, that person was asked to recommend another, and so on until a panel member was successfully enlisted.

Individual panel members were contacted by email, and all remaining contact was by email or electronic media. The first round comprised information and consent forms emailed to 10 specialists, including four adults with VI from Australia, New Zealand, and the US. The email included a request to forward the invitation to other specialists who may be interested in participating. One repeat of the email was forwarded two weeks later. Six of the original specialists consented to participate. None of the initial specialists forwarded the email or provided another contact as a potential panel member. Shortly after commencement of the data collection phase, one panel member withdrew, leaving five panel members. Another panel member withdrew after the first round of responses, leaving four final panel members. The initial five panel members included three females and two males, all O&M specialists, with only one of these currently working in the field of O&M. Combined, these specialists had over 150 years of knowledge and expertise in the field of VI. From here onwards, I refer to the panel members with pseudonyms, as Lee, Maggie, Lizzie, Jenny, and Reginald.

Ethics

As aforementioned, in response to my ethics approval from the JCU Human Research Ethics Committee, I was asked to specifically address three main ethical risks, as follows: potential perceived coercion, issues of distress, and respect for participants. I sought to address potential perceived coercion by the use of Queensland DoE school chaplains as mediators and third parties between students, their primary caregivers, school communities, and me. The school chaplain acted as the intermediary for issues of voluntary recruitment, provision of informed consent, and discussion of rights to withdraw from participation. In addition, relevant school principals and line managers acted as intermediaries between participants and me. Further, to proactively address possible issues of coercion and conflict of interest, I encouraged the attendance of the school chaplain at any interviews with the students.

I ensured that it was clear to all stakeholders that the student participants received the same service, regardless of their participation in this research. I further attempted to reduce any perceived coercion between students, parents, teachers, and me by requesting the return of participant consent forms to school principals, with a copy provided to me via the school administrative services. I initially sought to address possible issues of distress with participants through the use school principals, and with the associated Queensland DoE guidance officer and school chaplain services acting as third parties. In addition, I explicitly addressed and sought respect for participants through my choice of an interpretive methodology and emergent research method, and by valuing the interpretation and verification of interview transcripts with participants. This attention to detail continued through all stages of the research project.

Confidentiality and Consent

Initial recruitment of participants included face-to-face or email contact. Throughout the research, ongoing reminders provided participants with information regarding the voluntary nature of their participation, rights to confidentiality, and rights to withdraw from the project at any stage. Each participant received information and consent forms (see Appendix D). The

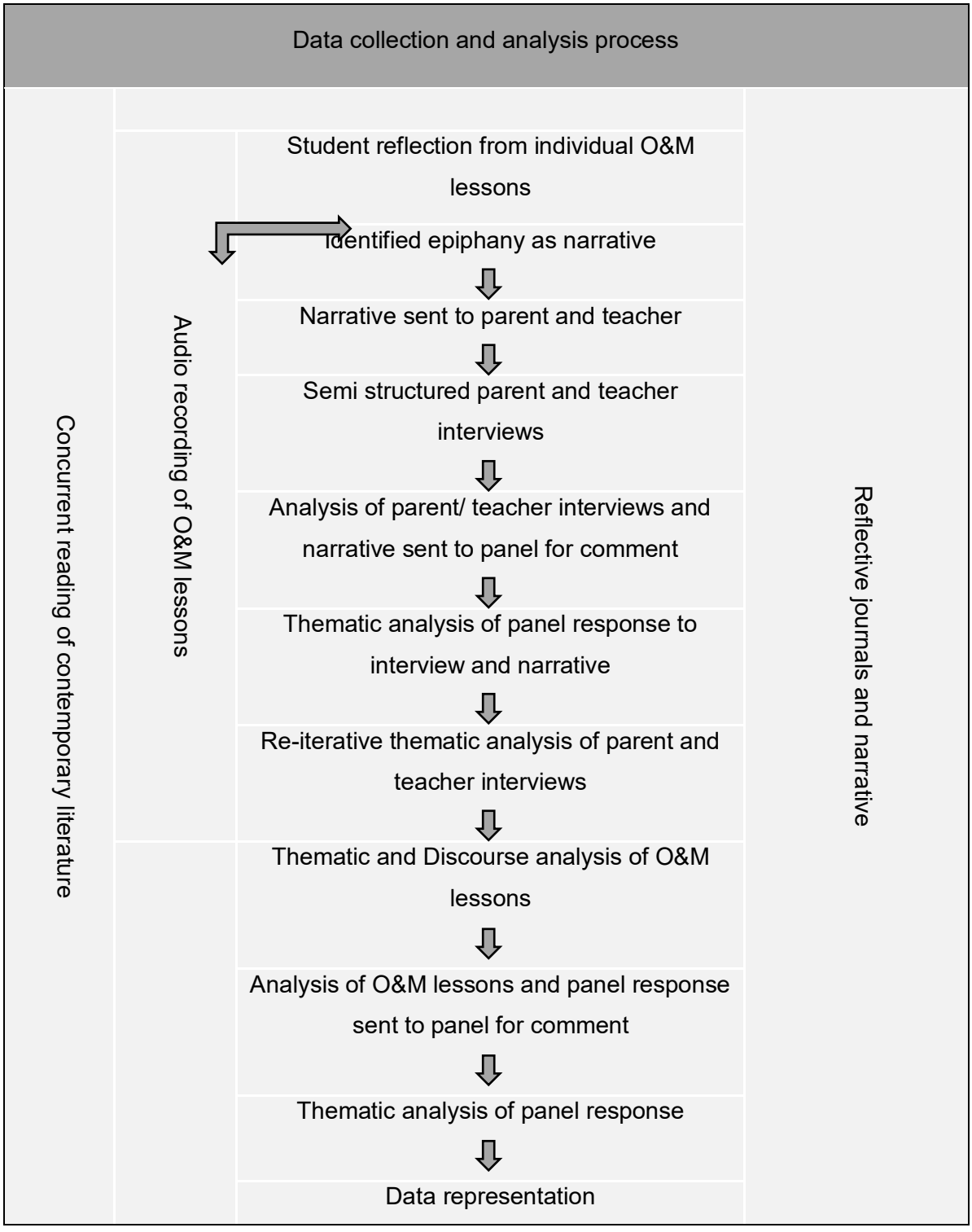
students received these forms in their preferred reading format, with modifications according to age and reading level. Following advice from the JCU Human Research Ethics Committee, school chaplains assisted students to understand the content. All participants provided informed written progressive consent prior to and throughout participation in the project. Progressive consent (Denshire, 2014; Ellis, 2008) is defined as active informed consent, where authors are obliged to share the narrative accounts at each stage of the project with their participants. As previously stated, pseudonyms were used for all participants, and a combination of fictionalising, symbolic equivalents and composite characterisation was used to further protect the anonymity of participants and educational communities (Denshire, 2014). However, the pertinent eye conditions and functional vision levels of the students with VI were void of fictionalisation, characterisation, or modification.

Data Collection

Over a six-month period (one school semester), I collected audio-recorded data from the O&M lessons with three Queensland primary school students with VI, as well as associated field texts, reflective journals, planning documents (e.g., lesson and unit plans), and student reflections. Semi-structured interviews were conducted for the parent and teacher of the students with VI. Additionally, a five-member panel of specialists and professionals was recruited to address possible issues of bias and validity, and for the purpose of triangulation. Throughout the data collection, recording, and analysis process, these specialists provided expert opinion on the issues identified in the data. The primary method of data analysis included a combination of reiterative thematic and discourse analysis, combined with systematic self-reflection. I discuss this circular self-reflective, retrospective, and introspective analysis later in the section on hermeneutic phenomenology and self-reflection. An overview of the data collection and analysis process is presented in Table 4.1. The synthesis of these data collection and analysis methods provided the necessary platform for me to achieve the research focus areas, which were to better understand the practice of O&M, and the alignment of O&M learning and teaching with the Australian Curriculum.

Developed from within the parameters of narrative inquiry and autoethnography, the data collection tools included insider researcher observations and narrative, audio-recorded lessons, student reflections collected as part of the O&M lesson review (see Table 4.3 Chapter 4), semi-structured interviews with the parent and teacher, and structured reflective questions from the panel of specialists (Denzin & Lincoln, 2002). Specifically, data collection included my professional reflective journal, planning documents and audio-recordings of 13 O&M lessons conducted over two school terms with the three students. Data collection also comprised two audio-recorded, face-to-face, 15-minute semi-structured interviews with Donna (teacher) and Geoff (parent) using a scenario from an O&M lesson as a discussion for the interview, and written quality assurance, explicit feedback, and validity checks from the consultative panel throughout the project. These data collection tools enabled me to focus on the experiences of O&M from the participants' viewpoints, and to explore conceptions about blending disability-specific learning, such as O&M, with the Australian Curriculum.

Table 4.1. Data Collection and Analysis Process



Pilot interviews.

Prior to commencing the data collection, to ensure that a scenario-based interview would accomplish the data collection aims, two 20-minute, face-to-face, unstructured pilot

interviews were completed with two volunteer advisory teachers of students with VI from the North and Far North Queensland DoE regions. I provided the two advisory teachers with a self-reflective narrative of an O&M lesson with a student who was unfamiliar to either advisory teacher. This narrative was given to them several weeks prior to the interview, along with four key interactions and five discussion areas for consideration (see Table 4.2). These pilot interviews were audio-recorded and transcribed by hand, with the transcriptions subsequently provided to the teachers for their verification. The pilot interviews provided insights to the use of the scenario approach. Under the umbrella of emergent research, these insights were used to modify the use of the scenario in the semi-structured interview and panel feedback phase of the data collection.

Table 4.2. Interview Interactions and Discussion Areas

Four Key Interactions	Areas for Discussion
Sharing stories and shared professional experience of O&M	How participants remembered their own O&M learning.
Individual experiences of O&M	What they believed about O&M teachers and teaching any students / O&M teachers
Public policy and legislation affecting practices of O&M	Events they thought had been influential in O&M learning and teaching
Difference between present and past as teachers and learners of O&M	Their role as O&M teacher educators or O&M learners
	How they felt O&M is or could be integrated into regular school activities.

The use of scenarios.

Scenarios form part of the variety of ethnographic and qualitative data collection tools. Lankshear and Knobel (2004, p. 201) argued that using scenarios in interviews renders them more “problem centred”. They stated that, by using an “eliciting device such as a

hypothetical or real problem, scenario or anecdote, information can be more easily prompted from respondents". Campbell et al. (2004, p. 10) further described the use of scenarios as a way to reflect on incidents to "develop understanding and develop thinking practice". Denzin (2011) stated that scenarios can be used to confront issues and misconceptions. Further, scenarios can assist participants to draw on their own experience and imagine the behaviour of central characters (Bloor & Wood, 2006). Moreover, Grossi (2006, p. 228) used scenarios to "highlight points of a situation that may otherwise have gone unnoticed". In my research, I employed scenarios for all the above reasons.

***The O&M scenario interview stimulus*.**

Similar to my pilot interviews, a narrative scenario was provided to Geoff and Donna prior to their interviews (and then later to the panel). This narrative scenario (see Appendix E) was a short self-reflective story of an epiphany regarding the alignment of O&M with the Australian Curriculum, drawn from my perspective when working with Annie. The purpose of the narrative was a stimulus for the interviews and to aid professional dialogue with the panel (Hayler, 2011). Similar to Hayler (2011), I envisaged that Donna, Geoff, and the panel of specialists might volunteer a narrative of their own after reading mine, thereby adding to the narrative inquiry.

Student reflection.

The student reflection occurred as a natural aspect of the teaching and learning cycle. The student reflection comprised a five-minute audio-recorded individual conference between the student and me. The reflection was provided to the student for verification upon conclusion of each lesson. This essentially involved me playing a recording of the student's reflection back to them. The "know and do" model (see Table 4.3), based on the Queensland DoE Dimensions of Teaching and Learning pedagogical framework (DoE publishing as DET, 2015), was used to initiate student reflections. The application of this pedagogical framework involves "teachers in an iterative process of asking questions about student needs and progress, evaluating evidence and thinking about what, when and how to teach for effective learning of all students" (DoE publishing as DET, 2015, para. 3). The Queensland DoE

pedagogical framework was adapted to the mnemonic used by me and familiar to the students, and originally identified by Brannock and Golding (2000) as “useful, useless or interesting” (UUI). Originally, Brannock and Golding (2000) initiated the UUI as an open-ended question to facilitate students to review their route travel, and to provide information to the O&M specialist about what to include in future O&M lessons.

Table 4.3. Know and Do Student Reflection Questions

Know and Do model of student reflection questions (DET, 2015).
What am I learning and why am I learning this?
How am I going?
How do I know?
How can I improve?
Where can I go for help?

Audio-recorded O&M lessons.

Thirteen O&M lessons were recorded over two school terms (one semester). Over 240 minutes, approximately four hours of O&M lessons and approximately one hour and 30 minutes per student of audio-recorded data were collected. The audio-recorded lessons were individually transcribed by hand and then entered into a Microsoft Excel spreadsheet for later detailed analysis.

Semi-structured interviews.

There are many interview types relevant for qualitative research design, with each type of interview dependent on the research purpose (Carley-Baxter, 2008). Semi-structured interviews generally follow a topic guide, yet have inherent flexibility for the interviewer to follow up points (Campbell et al., 2004). According to Bloor and Wood (2006, p. 104), semi-structured interviews have a “more informal, conversational character, being shaped partly by the interviewer’s pre-existing topic guide and partly by concerns that are emergent in the

interview". This is further supported by Carley-Baxter (2008), who suggested that, in semi-structured interviews, the interviewer has the freedom to add, delete, or alter questions.

Several recent studies about students with VI have used semi-structured interviews. For example, Aiwa (2013) claimed that semi-structured interviews best suited his research focus in understanding access to curriculum for students with VI in Papua New Guinea. Khochen (2016, p. 98) investigated inclusive education for students with VI, and stated that semi-structured interviews made it possible for her "to examine particularly important aspects of the research". Alkhanifer and Ludi (2014, p. 24) used semi-structured interviews with people with VI who were users of specific ETA technology to "generate some important ideas", and Scott (2015) argued that the use of semi-structured interviews with parents, teachers, and students with VI provided a basis for themes that were then supported by other data. More specifically, Scott (2015) claimed that semi-structured interviews facilitated participants to reveal perspectives, intentions, strategies and expectations regarding O&M long-cane instruction and use.

My intention was that my narrative scenario of the learning and teaching of O&M with Annie would form the foundation for the semi-structured interviews with Donna and Geoff. I assumed that questions for the semi-structured interview would then be based on the four key interactions and five discussion areas adapted from Hayler (2011) (see Table 4.2). An alternative set of questions was adapted from Scott (2015) as a back-up to the interview discussion. Table 4.4 depicts these questions. Each audio-recorded parent and teacher interview was individually transcribed by hand and the transcriptions were placed into a Microsoft Excel spreadsheet for later analysis. The transcriptions were sent to the parent and to the teacher for verification and further comment, with an invitation for them to add any additional narrative, experiences or thoughts on O&M learning and teaching.

Table 4.4. Questions for Semi-structured Interviews (Scott, 2015, p. 133)

Questions for Geoff (parent)
How did your family become involved with O&M intervention?
What aspects of O&M intervention were significant for you?
What did it mean to you for your child to receive O&M intervention?
What opinions do you have about O&M intervention?
What influence do you think O&M intervention has had on your family?

Panel response.

The panel members were invited to comment on and verify data at three key stages of the research. The first stage involved the narrative scenario from the O&M lesson with Annie. The second stage involved the themes and subfields from the thematic data analysis of Geoff's and Donna's interviews. The third stage involved the themes and subthemes from the thematic analysis of the O&M lessons. I encouraged the panel to base their opinions on their own personal knowledge and experiences. In keeping with the Delphi method, the panel remained anonymous to each other; however, unlike the Delphi method, consensus between panel members was not sought. Similar to the parent and teacher interviews, the panel member responses were placed into a Microsoft Excel spreadsheet for later analysis.

In the first two phases of the panel response, panel members were asked whether they agreed or disagreed with the data. In particular, the panel were asked to consider any possible bias or assumptions in the data. The panel questions for the first discussion (see Table 4.5) on the parent and teacher interview and the narrative scenario were based on Socratic questioning (Barnes, 2017). In the final round of responses, the questions were altered to alleviate redundancy and to identify any bias in analysis. In the final panel response, panel members were invited to add any additional comments or insights from four perspectives: credibility, transferability, dependability, and confirmability. Panel members were provided with the three questions listed in Table 4.6).

Table 4.5. First and Second Round of Panel Response Questions

Socratic questioning
What do you think is the main issue in the data?
What assumptions can you make from the data?
What is ... assuming here?
What led you to this belief?
What caused you to feel that way?
What is an alternative analysis?

Table 4.6. Final Phase of Panel Response Questions

Panel response questions
What other information would you need to consider the data from the perspective of credibility, transferability, dependability and confirmability?
How do these preliminary major, minor and subthemes resonate with your professional experiences of O&M learning and teaching?
Additional comments, suggestions or feedback.

Field notes and journal entries.

Field notes are specifically included as part of interpretivist educational research (Riyami, 2015). Importantly, Denzin and Lincoln (2000) identified field notes and journal entries as data collection tools from within the autoethnographic and narrative inquiry research approaches. This is further supported by Campbell et al. (2004, p. 15), who argued that:

> taking field notes as part of research is a recognised and well developed research method, adapted from ethnographic and anthropological research for use in educational settings often supplemented by gathering data by other methods, such as interviews or structured observations.

Both Khochen (2016) and Lampert (2016) identified the use of field notes in their respective studies with students with VI. Lampert (2016) specifically compiled field notes during and immediately after each interview, while Khochen (2016, p. 97) claimed that the use of field notes enabled “more accurate inferences” about the interviews. Khochen (2016, p. 97) stated: “I took daily field notes in the form of written logs. These logs contained a mixture of summary descriptions of events and records of some conversations, especially those that were before or after conducting the interviews”.

Therefore, I used a variety of field notes as data collection tools, such as journal entries, lesson and unit plans, reports, and documented conversations. In addition, reflective journals were framed around Schön’s (1991) six-point iterative reflective model, which is described in detail in Figure 4.1. Components of Cooley’s looking-glass self (Cooley, 1926)—how I imagined I might be understood by another—and Socratic questioning (see Table 4.5) were also incorporated to aid the introspective process. I also included reflections that were specifically focused on providing detailed descriptions, with explanations of what I was thinking and feeling at the time, alongside evaluations, analysis and action plans, or personal growth learning plans. As Oliver (2011, p. 413) suggested when engaging in the analysis of thinking, “through tools such as reflective journal and detailed field notes”, one can capture both one’s own “understandings and those of the participants”.

Figure 4.1. Adaption of Schon's (1991) Reflection on Action and Reflection in Action Model

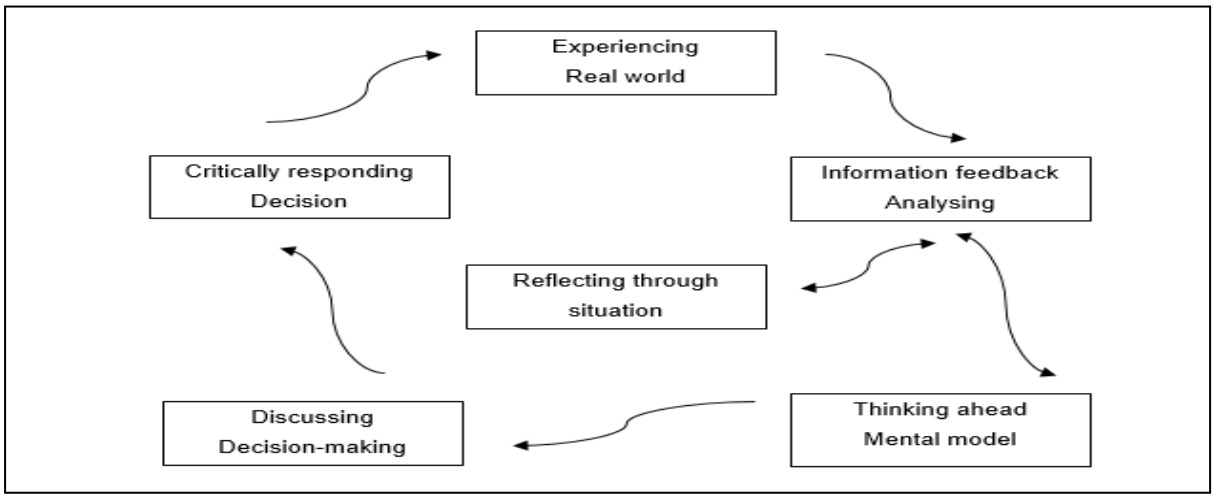


Figure X. Adaptation of Schon's (1991) reflective practice model used throughout the collection and assimilation of field notes and journals.

Data Analysis

This section first defines hermeneutic phenomenology as self-reflection, and then applies the thematic analysis approach to the interviews and details the panel responses. Thereafter, it describes the thematic and discourse analysis approach as applied to the O&M lessons. Data analysis specifically involved appropriation of systematic introspection (Denzin, 2001; Ellis, 2008), which encompassed self-reflection underpinned by hermeneutic phenomenology. The semi-structured interviews and panel responses were analysed using thematic analysis. Data analysis of the audio-recorded lessons included both thematic and discourse analysis (Charmaz, 2006; Clandinin & Connelly, 2000; Creswell, 2013). The thematic and discourse analysis were presented to the panel for checking and validation of themes.

Hermeneutic phenomenology and self-reflection.

In my initial research proposal, I indicated a preference for systematic sociological introspection as my chosen data analysis technique. At that time, I largely assumed that systematic sociological introspection was the expected "tool of the trade" of autoethnographers. As Ellis (2008, p. 3) stated, systematic sociological introspection is the "primary method connected with autoethnographic writing". Ellis (2008, p. 5) described systematic sociological introspection as "the chronological collection of field notes, the application of self-reflection, the establishment of the narrative plot, and conversations between writers and readers", which resonated with my initial overarching research purpose. In addition, there is a long history of systematic sociological introspection in autoethnographic research. Contemporary researchers in the field of VI (Aiwa, 2013; Scott, 2015) and educational researcher Neyman (2011) provided precedence and increased my resolve to employ the tenets of sociological systematic introspection in my research design.

However, I was confused by the interchangeable references in the literature to this process of introspection. Introspection is variously referred to as sympathetic sociological introspection (Cooley, 1926), sympathetic introspection (Witz & Bae, 2011), sociological imagination (Mills, 1961), interpretive interactionism (Denzin, 1985), sociological

introspection (Ellis, 1991) and systematic sociological introspection (Ellis, 2008). Each of these variations to the introspective processes follows prescribed approaches. For example, Denzin (1985, p. 223) detailed four modes of “lived emotion” as a hermeneutic process within interpretive interactionism. In contrast, Ellis (2008) stepped out the process of sociological introspection, all the while dichotomously alluding to the belief that sociological introspection did not necessarily lead to successful autoethnography. The third approach that caught my attention was that of Mills (1961), who provided extensive scaffolding for sympathetic imagination reflexive journal entries. Although the accounts of introspection by Denzin (1985), Ellis (2008), and Mills (1961) influenced my decision making as a researcher, I did not closely follow their guidelines.

The discourse on introspection is founded on the sociological and psychological propositions of Heidegger, Scheler, Merleau-Ponty, Sartre, Durkheim, Manheim, Marx, and Weber (Denzin, 1985; Mills, 1961). These philosophical founders of hermeneutic phenomenology largely deliberated on perception and interpretation of human action. Merleau-Ponty’s thoughts on perception resonated most with my interpretation of O&M learning and teaching. In *Phenomenology of Perception* (1962), Merleau-Ponty argued that only after we have been integrated with the environment and perceived objects can we attend to those particular objects to clarify and define the objects. Further, Merleau-Ponty (1962) emphasised the foundational role that perception plays in both understanding and engaging with the world.

Therefore, I did not specifically subscribe to the systematic introspection prescribed by Ellis (2008), the sympathetic introspection and imagination chartered by Cooley (1926) and Mills (1961) or the specific lived body experiences ascribed by Denzin (1985). In fact, I appropriated all of these to engage in Schön’s (1991) reflective practice (see Figure 4.1) as a way to understand and explore my own and other’s perceptions of O&M learning and teaching. I engaged in reflective practice as a process of continuous insightful learning. More specifically, I devoted critical attention to the practice that informed everyday O&M learning interactions, and reflectively and reflexively examined my practice. As Schön (1991) stated,

experience alone does not necessarily lead to learning; however, deliberate reflection on experience is essential.

Thematic analysis.

According to Vaismoradi (2013), thematic analysis involves making inferences by identifying, analysing, and reporting patterns. More specifically, as Khochen (2016) explained, thematic analysis refers to the process of identifying concepts and themes embedded throughout the data. This process constituted a useful and flexible method to analyse my qualitative data, as it allowed me to provide a rich, detailed, and complex account of the collected data. I appropriated the ideas of Charmaz (2006); Emerson, Fretz, and Shaw (2011); and Khochen (2016) to formulate a systematic approach to data analysis for the interviews and panel responses (see Table 4.7).

Table 4.7. Thematic Data Analysis Procedure for Interviews and Panel Responses

1	**Data familiarisation** • Read through for familiarity
2	**Labelling and grouping** • Assign concept labels based on the focus of each of the questions. • Identify, group together and link selected concepts. • Identify quotations from panel to illustrate concepts. • Revisit the already identified concepts to organise and re-group using a reiterative approach. • Apply the same procedure for all the other categories.
3	**Identifying themes, sub-themes, and minor themes** • Group identified concepts based on differences and similarities to questions. • Look for common patterns in grouped concepts. • Identify sub theme, main theme, and minor theme in each panel and interview response.
4	**Re-organising and cross checking** • Check consistency of concepts to main themes. • Develop reference labels to identify which concepts and themes belong together. • Establish final themes. • Re-organise and re-examine the established themes in reiterative cycles. • Re-word themes and sub-themes as necessary.

Analysis of the parent and teacher interviews.

The analysis of Donna and Geoff's interview involved a reiterative process. For example, major and minor themes were identified throughout the interview, while transcribing, while the transcript was added to the Microsoft Excel spreadsheet, and after the responses from

the panel were received. To illustrate this principle, an example of the selected process and themes is shown below.

Interview Question: *"How did you become involved with O&M?"*

Selected Theme: ***"O&M"***

All interview responses linked to issues around the perception of or experiences with O&M were gathered and collated under the theme ***"O&M".*** Specific themes were identified by exploring the interview responses, with the same procedure followed across all responses and dialogue in the two interviews. Tentative minor themes were then identified from the responses associated with this major theme ***"O&M".*** A sample of these initial themes follows:

Minor themes:

- ECC
- inclusive education
- access
- pedagogy.

All statements related to access were collated to the minor theme ***"Access"***. For example, the following quotations were associated with this minor theme:

"that's going to allow her access to the curriculum"

"so that she has full access to all the content in that lesson".

The transcripts and the identified major and minor themes were sent to the specialist panel for verification and comment before completing further analysis.

Analysis of the panel member response.

The same analysis process was applied to the panel member responses and interviews with Donna and Geoff. Guided by the panel questions posed by the researcher and by the panel, and informed by the panel and researcher responses to those questions, the major themes, minor themes, and subthemes were identified within the parent and teacher interviews and

across the panel member responses. To illustrate this principle, an example of the selected themes for one question is provided in Table 4.8.

Table 4.8. Example of the Selected Themes of One Panel Response Question

<table>
<tr><td colspan="2">Question to panel: "What do you think are the main issues in the data?"</td></tr>
<tr><td colspan="2">Major Theme: 'Data issues'</td></tr>
<tr><td colspan="2">All responses linked to issues with the data were gathered under the theme 'data issues'. Specific concepts or minor themes were identified through further exploration of quotes. The same procedure was followed across all panel responses for each researcher question separately. As an example, the minor themes derived from the responses associated with the major theme "data issues" are highlighted below. Minor themes included: researcher bias, tacit knowledge of O&M learning and teaching, teaching and curriculum, and service providers. For instance, the stated responses regarding bias were linked to the minor theme "researcher bias". As an example, the following quotes were associated with the minor theme "researcher bias".</td></tr>
<tr><td colspan="2">Minor theme</td></tr>
<tr><td rowspan="2">Researcher bias</td><td>Panel member response</td></tr>
<tr><td>…It seems like the researcher needs to bracket this frustration and deal with it elsewhere so it doesn't overload a potentially healthy working relationship.
…The researcher seems to carry a cumulative and personal sense of being misunderstood and undervalued.
…The researcher's sense of despair about a history of miscommunication in her broader role seemed to blind her to these opportunities.</td></tr>
<tr><td colspan="2">The next step was to interrogate the minor themes and establish sub-themes to explore the points identified in the responses. For example, the group of responses associated with the minor theme "researcher bias" produced the following sub-themes: subjectivity, communication, and researcher expectations.</td></tr>
<tr><td colspan="2">Sub theme</td></tr>
<tr><td rowspan="2">Researcher expectations</td><td>Panel member response</td></tr>
<tr><td>… That people will read information before a meeting that they haven't initiated.
… Intangible notions can be drawn out from people in same manner as tangible notions.</td></tr>
</table>

Further reiterative cycles involved reorganising and re-examining the established themes. These cycles formed the basis for revisiting the analysis of the parent and teacher interviews, and for reconsidering the research design moving forwards. Additional major and minor themes evolved in the parent and teacher interview and the panel member responses to the researcher questions. I returned to the parent and teacher interviews for further analysis and reconsideration of themes following analysis of the panel member responses. This resulted in retaining some original themes from the parent interviews and subsuming others into existing or new themes. For example, in the original analysis of Donna's and Geoff's interview, the minor theme of *"Access"* was incorporated into the broader theme of *"Impact of vision impairment".* In addition, the major theme of "*O&M"* was broken down into discrete minor themes and subthemes, such as *"role of O&M", "value of O&M"* and *"tacit knowledge of O&M".*

Analysis of the O&M lessons.

Upon commencing the initial analysis of the lessons, it became evident that the thematic analysis applied to the interviews and panel response was ineffective for analysis of the O&M lessons. This was because the lack of direct questioning, speed of movement in dialogue and variable nature of the context in the lessons forestalled any direct ability to locate themes from questions or comments. While the interviews and panel responses assisted in developing an understanding of the culture of O&M learning and teaching from within the meso-, exo-, and macrosystems, the thematic approach previously applied to the parent and teacher interviews, and to the panel responses was ineffective when applied to the transcripts of the O&M lessons to address the research focus areas of understanding the practice of O&M and the alignment of O&M with the Australian Curriculum. To more specifically address the research focus areas, I needed to clearly identify the "how", "where" and "what" of alignment of O&M learning and teaching with the Australian Curriculum. This emergent approach to data analysis was clarified by Ravitch and Riggan (2017, p. 126), who

discussed how “re-interpretation of data occurs in data analysis (and re-analysis) with different frameworks and various lenses overtime”. Thus, the analysis of the O&M lessons transpired from four successive variations of the original thematic analysis applied to the parent and teacher interviews: (i) an operationalising of analytical themes; (ii) an appropriation of these themes as the interactions and ways of working for O&M; (iii) the division between curriculum alignment and pedagogy; and (iv) the social interactive nature that is specific to the O&M. All four variations to the original thematic analysis resulted in the discourse filtering, taxonomy, and pattern-matching analysis of the O&M lessons.

Operationalising analytical themes.

In consideration of the type of data in the O&M lessons, the thematic approach (see Table 4.9) employed by American educational and language researcher Erickson was adopted for data analysis of the O&M lessons. According to Ravitch and Riggan (2017, p. 129), Erickson specifically explored interactions and communication in the classroom, claiming that “interaction itself is the learning environment”. In his article, “Going for the Zone”, Erickson (1996) investigated the social organisation of attention and action in conversation, and considered the ecosystems of relations involved in reciprocal interactions. In examining his data, Erickson first identified an instance where specific interaction occurred, and then ascertained the characteristics of this interaction to locate other such instances in the remaining data. Ravitch and Riggan (2017) described this as operationalising analytical themes.

Like Erickson (1996), I drew on previous research and everyday professional discussions with my advisory teacher and O&M colleagues to establish the “occurrence” (Ravitch & Riggan, 2017, p. 141) of the Australian Curriculum within the O&M lesson. To highlight an occurrence of O&M alignment with the Australian Curriculum, the first audio-recorded lesson with Kelly was interrogated. The associated planning, meeting, and journal entries for the lesson were subsequently collated and examined. Similarly to Erickson (1996), two criteria were established in which alignment of O&M with the Australian

Curriculum transpired. The alignment of O&M required: (i) an expert and a novice and (ii) intent on behalf of the expert to engage the novice in the curriculum.

Table 4.9. Thematic Data Analysis Procedure for O&M Lessons

1	Identify characteristics of a situation in which [O&M learning and teaching] could occur within the contexts of [the Australian curriculum general capabilities]
Student attending to or adult directing attention to a *social, cultural, environmental, space, object, or text* through: • Dialogue or visual, auditory, tactile, kinaesthetic or proprioceptive attention to … • Modelling by teacher to gather information about… • Explicit identification of connection to a general capability area such as literacy numeracy, personal social capability or critical thinking activity • Dialogic questioning • Thinking aloud (I remember, I think, I wonder) by either teacher or student to gather information about… • Invitational language (let's have a look, we can) to attend or gather information about… • Explicit feedback to task, process, behaviour, future • Reflection on … by either teacher or student	
2	Use these characteristics to identify instances within the data where [O&M learning and teaching] is demonstrated within the context of [the Australian curriculum general capabilities]
3	Highlight areas in data that meet characteristics
4	Summarise individual lessons data
5	Apply analytical themes to the data by operationalising (locating) the characteristics of the situation across several occurrences (Ravitch and Riggan 2017). • Australian Curriculum general capabilities continuum and descriptors

Appropriation of themes as interactions and ways of working in O&M.

The complexity of the O&M lessons required more specific criteria than the thematic analysis initially depicted in Table 4.9. A more targeted criteria was required to allow for the interactions and ways of working for O&M and for students with VI. Therefore, the criteria were broadened to include the student attending to or the adult directing attention to a text—social, cultural, environmental, spatial, or as an object. The characteristics present in the lesson with Kelly specifically included the types of attention-directing tools and sensory attention that are possibly used by a student with VI or an O&M specialist.

The characteristics present in Kelly's lesson were then operationalised within the context of the Australian Curriculum general capabilities (see Table 2.2) to highlight instances throughout the lessons with all three students. These instances of alignment with the curriculum were then summarised, and major and minor themes applied. The Australian Curriculum general capabilities (ACARA, 2017b) continuum was used to establish the major and minor themes. Separate colours were used to identify each area of the Australian Curriculum general capabilities, accompanied by handwritten descriptions of each characteristic as originally identified in Kelly's lesson. The lesson transcript was successively transferred to a Microsoft Excel spreadsheet for further analysis. The same process was applied to all the lessons. Table 4.10 presents an excerpt of an O&M lesson exemplifying the allocation of the major and minor themes for the alignment of O&M with the Australian Curriculum.

Table 4.10. Sample of the Major and Minor Themes in an O&M Lesson

Major theme: '*Literacy'*		
Minor theme	***Teacher (T)*** ***Student (S)***	***Transcription***
Comprehending texts	*T* *S* *T* *S* *T* *S* *T* *S* *T*	*… Can you tell me more information about that sign?* *Um […] because it has a d…a…n. […] um […] g…e…r...* *I remember it says danger. What else do we know about this sign?* *Um […] it has black writing and it has a silver handle and it's near windows and it's […] has a blue door.* *So you told me before that we find signs because they might tell us about things. What do you think this sign is telling us about?* *There might be danger somewhere.* *There might be danger somewhere… Why do you think that?* *Because sometimes there's danger at XXX school. There might be a herd of snakes or um […] or something might catch something.* *It might be. So what other information do you know about that sign?*
The next step was to interrogate the **minor themes** and establish **sub-themes** to explore links to the curriculum. For example, the group of responses associated with the minor theme ***'Comprehending texts'*** produced the following sub-themes: activating and using prior knowledge, making inferences, predicting likely events, identifying literal information in a text, integrating ideas and information, and summarising and organising information.		
Sub-theme	***Teacher (T)*** ***Student (S)***	***Transcription***
Identifying literal information	*S* *S* *S* *S*	*Meat shop, meat shop.* *Yeah, or Target or Kmart.* *You can only go 80 speed.* *So oh […] like the shoe shops, it's got shoes or something.*

Division between curriculum alignment and pedagogy.

In summarising the analysis of student lessons, I became aware that there were two distinct focus areas in scenarios previously identified as meeting the criteria of an O&M occurrence in the context of the Australian Curriculum. Broadly, the focus areas were: (i) the curriculum indicators and descriptors, and (ii) the pedagogy or interactions associated with these scenarios. This division was not unexpected, as an emphasis on language and feedback was reflected in the results in my previous research (Blake, 2015). In this earlier research, the participants stated they believed that the "students' ability to see themselves as an information gatherer [was] dependent on the language and feedback provided by the adult" (Blake, 2015, p. 54).

Lankshear and Knobel contend that teacher researchers have consistently and historically "recorded contextualised verbal interactions" to "better understand language in educational settings" (2004, p. 195). In the present study verbal interactions were initially collated under the major theme of ***"language"***. The minor themes were then established by drawing on the literacy language types identified and described by Edwards-Groves, Anstey, and Bull (2014), and incorporating Hattie and Timperlay's (2007) feedback model (see Tables 4.11 and 4.12). The lesson data were subsequently revisited and the thematic analysis used to analyse the interviews was reapplied to the language types (see Table 4.11). Minor themes and subthemes for the major language theme were applied. To illustrate this principle, Table 4.13 presents an example of the selected language themes of one lesson. These language themes were entered into a Microsoft Excel spreadsheet, while the language types and curriculum were individually colour coded, and a count of all talk types within and across all lessons was completed.

Table 4.11. Definitions for Analysis of Teacher Talk[2]

Category/ Type of talk	Description	Example	Focus and Function of talk
Instructional/ Management	Physical, social and organizational management	*We are going to take some photos*	Organisation
Reconstruction/ Restatement	Construct, reconstruct, paraphrase or rephrase, confirm correct answer, provide implicit modelling	*So, Big W has that big blue area in the middle (repeating student's answer)*	Doing O&M
Elaboration/ Projection/ Productive questioning	Require inferential thinking, require drawing on own experience or knowledge	*How did you know this was an exit?* *There is another one on that exit door.*	
Informational	Provide information about O&M learning		
Process	Focus on cognitive aspects of the task, decision making processes, Explicitly model cognitive activity and thinking processes	*I wonder why they would have a book like this.*	Learning about how, what, and why of O&M
Utility	Explain how strategies might be useful in other situations	*It is useful to do … because…* *Why do we…*	

[2] From *Classroom talk:* Understanding dialogue, pedagogy and practice, (p. 122), by C. Edwards-Groves, M. Anstey, and G, Bull, Newton, NSW: Primary English Teaching Association Australia [PETAA]. Copyright 2014 by PETAA. Reprinted or adapted with permission.

Table 4.12. Categories and Descriptions for Analysis of Teacher Feedback (Hattie & Timperlay, 2007)

Category/ Type of feedback		**Description**	***Example***
Task level		How well tasks are understood/performed	*You need to include more about the…*
Process level		The main process needed to understand/ perform tasks	*This may make more sense if you use the strategies we talked about earlier.*
Behaviour	Self-regulation Self-level	Self-monitoring, directing, and regularity of actions Personal evaluations and affect about the learner	*You already know the key features of…* *You're a great student* *Well done*
Future		Leads to greater possibilities for learning Addresses the "where to next"	*Next time you could*

Table 4.13. Sample of the Selected Minor Language Themes within an O&M Lesson

Minor theme		
Language		
The sub themes derived from the responses associated with the minor theme ***'language'*** include: instructional/ management, paraphrasing/ reconstruction, elaboration/ productive questioning, informational, processes (modelling cognitive activity), feedback, and closed question/ answer.		
Sub-theme		
	Teacher (T)	***Transcription***
Productive questioning	*T*	*So tell me more about that building.*
	T	*What else can we use to describe this area?*
	T	*All right, what's another way we can tell the difference?*

The social interactive nature of O&M.

Several converging moments provided reason to pause and re-examine the lesson data at this point. These moments included an inability to answer data analysis questions as posed by Charmaz (2006) and Emerson et al. (2011) (see Table 4.14), a rereading of Bronfenbrenner's (2005) bioecological model, and a detailed reading of Edwards-Groves et al. (2014) examination of classroom talk. In particular, I discerned an early emerging pattern between closed-question initiate-response-evaluate (IRE) (Edwards-Groves et al., 2014) interactions and lack of alignment of O&M with the Australian Curriculum. At the same time, I was involved in several professional conversations regarding conditions 'for learning', as well as conditions 'of learning', and conditions 'as learning' for students with VI.

Initial interrogation of the lesson data drew on two particular questions raised by Charmaz (2006) and Emmerson et al. (2011). A series of open questions to guide analysis were provided by Charmaz (2006), while Emerson et al. (2011) provided reflexive questions that qualitative researchers employ during data interrogation (see Table 4.14). Of these questions, two were of particular intrigue: (i) How do structure and context serve to support, maintain, impede, or change actions and statements? (ii) How do members talk about,

characterise, and understand what is going on? These questions resonated with my research focus in understanding the practice and culture of O&M learning and teaching. The analysis techniques applied to the O&M lesson thus far had not provided any illumination of these questions. In particular, these questions required me to consider the structure and context in an O&M learning and teaching episode. Thus, I returned to Bronfenbrenner's theories on development to understand possible structures pertaining to O&M lessons.

Table 4.14. Questions Guiding Further Data Analysis

Author	Questions for data analysis
(Charmaz, 2006)	What is going on? What are the people doing? What are the people saying? How do structure and context serve to support, maintain, impede or change these actions and statements?
(Emerson et al., 2011)	What are people doing? How exactly do they do this? What specific means and/or strategies do they use? How do members talk about, characterise and understand what is going on?

A rereading of Bronfenbrenner raised two important considerations for further analysis of the O&M lesson data: the concept of development over time and proximal processes. In his bioecological model, Bronfenbrenner (2005) specifically referred to the notion of process and contexts over time. Bronfenbrenner identified the context as the interactions between the processes and the person, and the notion of continuity and discontinuity of time. Bronfenbrenner identified tenets of the interaction as engagement, reciprocity, and regular occurrence. For Bronfenbrenner (2005), the element of time has

special importance in the bioecological model of development. Bronfenbrenner (2005, p. 7) stated:

> The research design must demonstrate, or at least make plausible, that the elements in the design, and their dynamic relationships to each other, have influenced the bio psychological characteristics of the developing person over an extended period of time.

Proximal processes were identified by Bronfenbrenner and Morris (2006) as interactions in the immediate environment, including child-to-child activities, play, new skill acquisition, and problem solving. According to Bronfenbrenner (2005, p. 97), there are “characteristics of the developing person that invite, permit or inhibit engagement in sustained interaction with the environment”. These characteristics are noted as personal dispositions, attributes (such as ability, experience, knowledge and skill) and temperaments. More importantly for analysis of O&M lesson interactions is the form, power, content, and direction of these proximal processes, especially Bronfenbrenner’s notion of reciprocal interplay between person and environment. As yet, the O&M lesson data had not been interrogated from within the lesson structure, across a series of lessons, over the semester of accrued lessons, or as a focused analysis of the social interactive processes in an O&M lesson context.

Edwards-Groves et al. (2014 p. 125) advocated undertaking “focused analysis and reflection on dialogue, pedagogy and practice” and reflecting on “how these analyses might inform future learning episodes”. According to Edwards-Groves et al. (2014), focused analysis involves attention and specific analysis of the statements, actions, and relations occurring within and across lesson phases. They identified several aspects of focused analysis, including posture, positioning, gestures, proximity, body orientation, wait time, words per utterance, reciprocity, use of processual verbs, and lexical density.

While reading the literature, I was continuing in my role as O&M advisory teacher for the Queensland DoE. I was asked by the leadership team of a school to provide a

presentation to staff on the key factors in O&M learning and teaching. This episode, alongside the rereading of Bronfenbrenner and Edwards-Groves et al. (2014), led me to seek counsel from my advisory teacher and O&M professional work colleagues about which conditions they considered to impede or sustain O&M lesson interactions. I was directed to the "eight essential points" of O&M, coined nearly two decades ago by Brannock and Golding (2000) (see Chapter 2). Originally appropriated from the ideas and practices of Nielsen (1990) and De Bono (1967), these eight essential points support the above theories regarding the conditions for, of, and as learning for students with VI (see Table 2.3).

Discourse analysis.

The face-to-face talk that takes place between and among students and teachers is discourse (Edwards-Groves et al., 2014). Therefore, the exploration of the social nature of the classroom is according to Edwards-Groves et al., (2014), a form of discourse analysis. For simplicity, Potter (1998, p. 132) argued that "discourse analysis is taken as covering a range of work which includes conversation analysis". Discourse analysis is founded in literary and social constructionist theories and narrative research, and concerns the "how" of therapy and teaching (Edwards-Groves et al., 2014; Lankshear & Knobel, 2004; Potter, 1998). For Hodges, Kuper, and Reeves (2008, p. 572), underpinning all "variants of discourse analysis is the idea of examining segments, or frames of communication, and using this to understand meaning at a "meta" level, rather than simply at the level of actual semantic meaning". In particular, Martin (1992) suggested that, in Australia, discourse analysis has evolved as a means of exploring the relationship between text and context, and as a foundation for the development of educational linguistics specifically with a focus on literacy development. A major feature of discourse analysis is attention to interactions and conversations in natural settings. This is supported by Potter (1998, p. 134) , who argued that discourse analysis "reveals an order to interaction that participants are often unable to formulate in abstract terms".

Therefore, to complete a discourse analysis, the O&M lesson data were revisited. The focus areas established by Edwards-Groves et al. (2014) (see Table 4.15) were appropriated

to O&M learning and teaching, and attention was devoted to the guidelines of discourse analysis as identified by Potter (1998). These included attention to the detail of the discourse, the rhetorical organisation of the discourse, and the patterning of turn taking. Table 4.15 provides an overview of the discourse analysis sequence. All the lesson analysis areas across all lessons over the whole semester were initially recorded onto a Microsoft Excel spreadsheet. Each different talk type, lesson phase, point of interaction, and social nature were colour coded for later patterning. The audio-recordings were revisited and, with the aid of a stopwatch, the wait time was recorded. The mean length of utterances for the student and me were calculated. Filtering and pattern matching were completed, followed by analysis of the processual verbs and lexical density of two targeted lessons.

Table 4.15. Focused Lesson Discourse Analysis

	Focused lesson analysis
1	The phase structure of a lesson and its focused learning episodes
2	The types of talk used in a lesson and the function of that talk within the structural elements and phases of the lesson
3	The social nature of learning • Proximity • Orientation/ Body position • Head nods/ facial expression • Posture • Gaze and eye movements • Position
4	The wait time between interactions
5	Mean length per utterance
6	Reciprocity (turn taking)
7	Verb processes
8	The lexical density of interactions

***Analysis of wait times*.**

While wait time is traditionally interpreted as time between vocalisations (Rowe, 1986), for students with VI, wait time includes response time (Brannock & Golding, 2000). Student wait time may be a change in body posture, eye gaze, orientation or interaction (Nielsen, 1990). In consideration of Brannock and Golding's (2000) and Nielsen's (1990) interpretations of wait time for students with VI, the pause time during both students' dialogue and my own dialogue was included, as opposed to the end-of-dialogue wait time normally associated with teacher wait time (Edwards-Groves et al., 2014). A stopwatch was employed and wait time per second was recorded. The wait time was recorded in the lesson transcript as ellipses plus number of seconds wait time. Wait times of less than one second were recorded simply as […]. For example, "*mmm […] interesting […] shall we have a bit of a look […4…] oh, it's even got some pages […2…]".* The total wait time for each lesson was counted and the mean wait time for each lesson was calculated by dividing the total wait time by the number of wait time occurrences within the lesson. An overall mean wait time for all lessons was calculated by dividing the total wait time across all lessons by the number of lessons.

Analysis of mean length of utterance.

Casby (2011, p. 292) defined an utterance as a "sentence or a shorter unit separated by a pause, pitch drop, or other indication of a complete thought" that must be "completely intelligible". The rules for morpheme calculation drawn from Brown (1973) are displayed in Table 4.16. The number of free and bound morphemes per utterance were counted and divided by the number of utterances to ascertain the mean length of utterance in morphemes. Although classical mean length of utterance data is calculated over the first 100 utterances from each discourse (Casby, 2011), the entire dialogue for each O&M lesson was used. This was because the changing nature of the O&M lesson context meant there was inconsistency during different lesson phases in terms of length of utterance. An excerpt from one lesson is provided in Table 4.17 as an example of the calculation of morphemes per utterance and mean length of utterance.

Table 4.16. Rules for the Calculation of Morphemes (Brown, 1973, Casby, 2011)

Rules for calculating morphemes	
Single morpheme count	Compounds words (e.g., *railroad)*
	Ritualized reduplications (e.g., *choo-choo)*
	Diminutives (e.g., *horsie*, *dollie)*
	Irregular past tense verbs & plurals (e.g., *ate*, *went*)
	Catenatives (e.g., w*anna*, *gonna*,)
Separate morpheme count	*s* plural (except if the word never occurs as singular) (e.g., *cat/s* = 2 morphemes, pants = 1 morphemes)
	-ed past tense (e.g., w*alk/ed*, *count/ed*, = 2 morphemes
	*ing (*e.g., *walk/ing*, *count/ing)*
	third person marker (e.g., *He like/s you* = 4 morphemes)
	Possessive *-s* marker (e.g., *That is Mike/'s house* = 5 morphemes)
	Contractions (e.g., *She/'ll)*
	Count adjective endings (e.g., *-er* as in *short/er*, *tall/er)*
Zero morpheme count	Reoccurrences for emphasis (e.g., *No! No! No!)*
	Derivational (eg., as in *teacher*, *painter)*
	Fillers (e.g., um)

Table 4.17. Mean Length of Utterance

Utterance		**Number of morphemes**
Teacher	Al/right/ so/ we/ are/ gather/ing/ information/	8
	What/ does/ predict/ing/ mean?	5
	What/ do/ you/ think/ predict/ing/ might/ mean/?	8
	Have/ you/ heard/ it/ before/?	5
Number of morphemes divided by the number of utterances = Mean length of utterance (MLU)		26/4 = 6.5 MLU

Reciprocity.

Reciprocity is defined in terms of the number of talk turns for the teacher and student (Lee & Kim, 2016). Reciprocity was determined by calculating the ratio of teacher talk to student talk for individual lessons—that is, the number of teacher utterances was divided by the number of student utterances (see Table 4.18).

Table 4.18. Reciprocity as Ratio of Teacher to Student Talk

Utterance		Number of utterances	
		Teacher	**Student**
Teacher	Alright so we are gathering information	1	
	What does predicting mean?	1	
Student	um […] I don't know		1
Teacher	What do you think predicting might mean?	1	
	Have you heard it before?	1	
Number of teacher utterances divided be number of student utterances = Ratio		4/1 = 4:1 Teacher to student talk.	

Filtering.

Following the calculation of wait time, mean length per utterance, and reciprocity, the data were filtered according to the first three focus areas identified by Edwards-Groves et al. (2014): the lesson phase and structure, types of talk, and social nature of learning. A systematic taxonomy was applied to filter the data (Lankshear & Knobel, 2004; Martin, 1992). The data was first filtered by phase of lesson such as introduction, guided practice, or review and then in order of the social learning areas identified by Edwards-Groves et al. (2014). These social learning areas included proximity, gaze, body orientation and position, head nods and gestures, postures, and location of objects. The location of objects was appropriated to an O&M context as to whether the object was located in the near or far space of the student (Saerberg, 2010). Talk type completed the filtering. The results of all the

lessons across the semester for each level and permutation of filtering were entered into a Microsoft Word document as a matrix. The matrices for each lesson were then positioned into a timeline of lesson progression across the whole semester to enable further detailed pattern-matching analysis.

An example of the taxonomy applied to the filtering is displayed in Figure 4.2. Each filtering paints a portrait of a minute moment of the O&M lesson. For example, in the sample in Figure 4.2, the filtering starts with the guided practice lesson phase, with the student visually attending to a printed text in near space, with the O&M teacher and student seated in close proximity, and with the O&M teacher pointing to the text as the student orientates their body toward the O&M teacher, as both O&M teacher and student lean toward the printed text, and visually scan the text while engaging in process talk.

Figure 4.2. Discourse Analysis Filter Taxonomy (Adapted from Edwards-Groves et al, 2014).

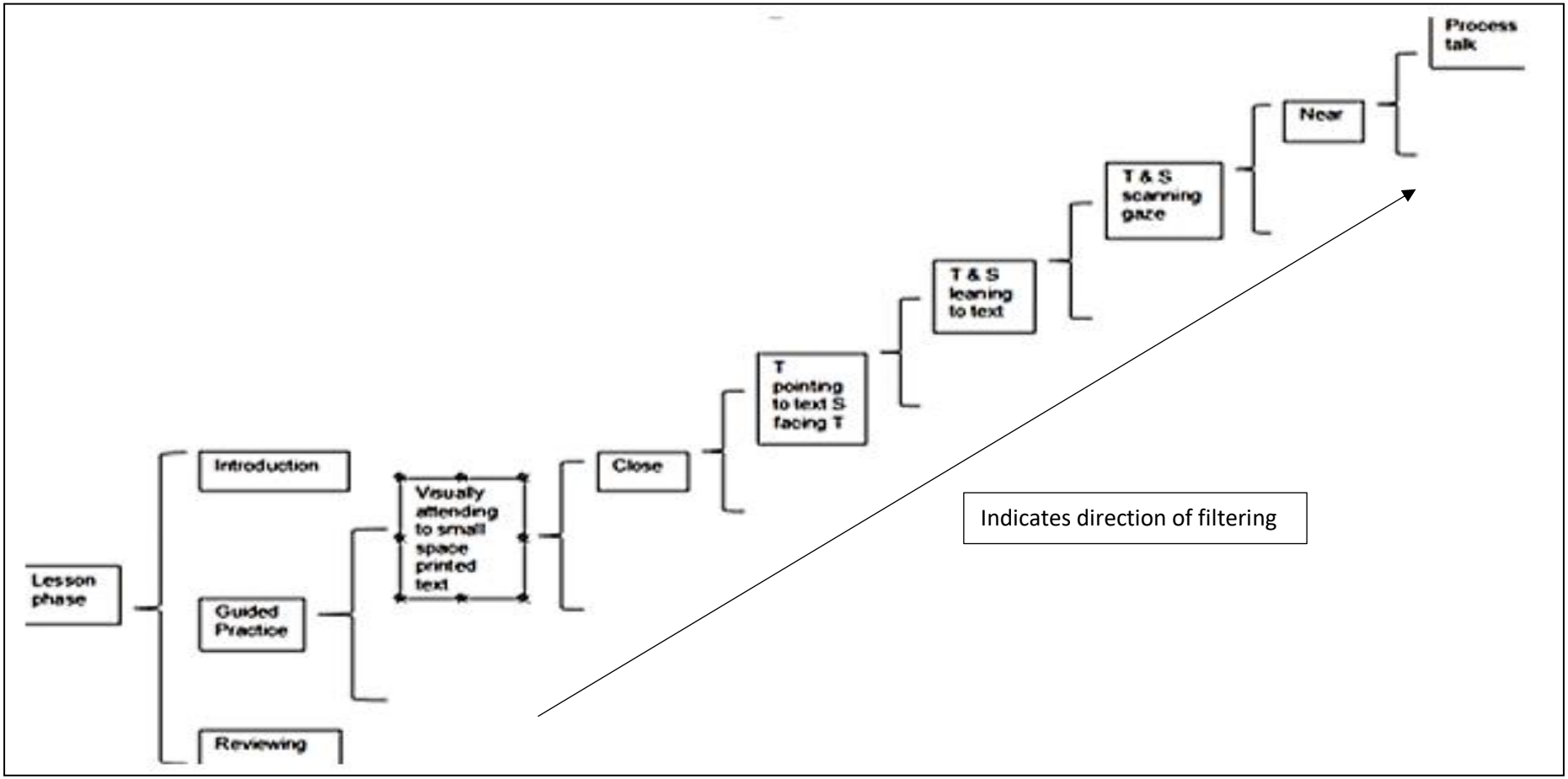


Figure 4.2. Displays a sample taxonomy of the filter process from a section of one lesson. The filter process moved systematically from left to right as depicted by the arrow through lesson phases, different social interactions, to conclude with talk type

Pattern-matching analysis.

According to Lankshear and Knobel (2004, p. 308), pattern matching is the "process of identifying patterns across pieces of information". Ethnographic data analysis theories were used to complete the pattern analysis. According to Fetterman (1989, p. 92), pattern-matching analysis begins with "a mass of undifferentiated ideas and behaviour and then collections, pieces of information, comparing, contrasting and sorting gross categories and minutiae until a discernible pattern of behaviour becomes visible". As suggested by Fetterman (2010), matrices were used as tools to compare and contrast the data. The three-step process of pattern matching was adopted from Lankshear and Knobel (2004) and is displayed in Table 4.19.

Table 4.19. Pattern Matching Process (Lankshear & Knobel 2004)

	Pattern matching
1	Identify broad categories or classes of data that appear similar
2	Sweeps the data for examples to claim a pattern
3	Search for irregularities in the patterns and data

***Reiterative thematic analysis*.**

Having established classes of similar data and enough examples to claim a pattern, a repeat of the thematic analysis implemented for the O&M lessons (see Table 4.9 previously) was completed. However, the focus of the thematic analysis at this stage was to generate considered judgements regarding what was significant and meaningful in the data, as per the reflective questions by Charmaz (2006) and Emerson et al. (2011) (see Table 4.14). Therefore, the characteristics from the focused lesson analysis that supported and sustained or impeded an O&M learning and teaching interaction were identified. These characteristics were operationalised to identify the occurrence of lessons or lesson components that met the criteria of sustaining or impeding O&M learning and teaching interactions.

Lexical density.

Two lessons represented characteristics supporting an O&M interaction, and impeding an O&M lesson interaction. The remaining areas of the focused lesson analysis (see Table 4.16) were completed on these two lessons as a sample of opposing O&M learning and teaching interactions. To establish lexical density, the ideas of Lankshear and Knobel (2004), Edwards-Groves et al. (2014) and Martin (1992) were employed. According to Lankshear and Knobel (2004, p. 345), lexical density refers to "the proportion of content words in a text", with content words "usually nouns, verbs and adverbs, carrying concrete and observable information" and distinguished from function words (determiners, pronouns, prepositions, and conjunctions). The definition of relational, material and mental verbs was drawn from Edwards-Groves et al. (2014) and is displayed in Table 4.20. The number of nouns, and the number of relational, material, and mental processes was totalled across the two selected lessons. The lexical density was determined by dividing the number of lexical words by the total number of words, multiplied by 100 (Martin, 1992). Table 4.21 provides an illustration of this process in a small excerpt from a lesson with Annie.

Table 4.20 Definition of Verbs[3]

Verb	Definition of verb	Examples
Relational	Processes of being that tell one something 'is'. They attribute characteristics, state circumstances, identify and denote possession	have, is was, did
Material	Processes of doing, purpose is to describe what is being done, for example reading or writing	Put, find, look, read, write, turn
Mental	Processes to do with feeling, thinking and perceiving. Termed metacognitive memory joggers.	Read, think, understand, remember, listen, choose

[3] *Note*. From *Classroom talk: Understanding dialogue, pedagogy and practice, (p. 124), by C.* Edwards-Groves, M. Anstey, and G. Bull, Newtown, NSW: Primary English Teaching Association Australia [PETAA]. Copyright 2014 by PETAA. Reprinted or adapted with permission.

Table 4.21. Lexical Density Analysis

Dialogue			Lexical words
Teacher	Alright so	*[non lexical word]*	4
	we	*[noun]*	
	are	*[relational]*	
	gathering	*[material*]	
	information	*[noun]*	
	What does	*[relational]*	
	predicting	*[mental]*	
	mean	*[relational]*	
Student	um […] I don't know		0
Teacher	What do	*[relational]*	5
	you	*[noun]*	
	think	*[mental]*	
	predicting	*[mental]*	
	might mean	*[relational]*	
	Have	*[relational]*	
	you	*[noun]*	
	heard	*[material*]	
	it before		
(Number of lexical words / total number of words) x 100 =Lexical Density (LD)			(9/22) x 100 = 40.9 (LD)

Data Storage

All digital transcripts and recorded data have been deposited at the JCU Tropical Data Hub with high confidentiality imposed (see below):

Blake, K. (2017). Data set examining orientation and mobility lessons of three primary school students with vision impairment. James Cook University. [Data Files] https://research.jcu.edu.au/researchdata/default/detail/dd125c646a6fb3122176d71307d8753/

Validity, Triangulation, Trustworthiness

As an insider researcher, there were inevitable tensions of validity, triangulation, trustworthiness, robustness, and bias. Two potential issues of validity were envisaged: the story told by me as research participant, and the story told by me as researcher. These two areas of validity included issues of trustworthiness, plausibility, credibility, and coherence (Reissman, 2008).

Trustworthiness was addressed as historical truth (Reissman, 2008). In particular, issues of trustworthiness included investigation that reported sequences of events and matched accounts from other sources through sharing the narratives and interviews from the students, parent, and teacher with the panel of specialists. Plausibility was addressed through simultaneous investigation of findings that were consistent with well-founded knowledge, such as concurrent readings of literature and explicit feedback from the panel. Credibility was established through acknowledgement of my years of experience in the industry to determine whether content or explored themes were reasonable (Ellis et al., 2010 2011; Reissman, 2008). Further, coherence was established through investigation of global, local and thematic issues surrounding the O&M profession, and through concurrent readings of empirical research and ongoing dialogue with the panel of specialists.

Triangulation was addressed through the multiple methods of data collection, including field observations and lesson recordings, reflective journals, semi-structured interviews, and continuous panel consultation. The panel were specifically asked to determine whether the story spoke “to them about their experience or about the lives of

others they know" (Ellis et al., 2010, p. 7). The "multiple data analysis and interpretation strategies" and the "employment of literature as a framework" (Foster, 2008, p. 12) further aided triangulation.

The panel of specialists were specifically requested to search for assumptions and biases in the data. Their diverse feedback was used to alert me to any potential misconceptions and interpretations. During the final phase of panel response, the panel were asked to consider the data in terms of credibility, transferability, dependability, and confirmability.

Bias

As outlined in the previous section, the interpretive approaches of narrative inquiry and autoethnography are aligned with criticisms of self-indulgence and self-interest (Anderson, 2006). Interpretive vignettes and stories invariably include gaps, silences, and surprises. Hutchinson (1985, p. 864) stated that "like the text, the reader does not exist outside a conventional network of interpretive strategies and norms. Both text and reader are always and already situated within a social milieu". Throughout my narrative, storying, self-reflection, and analysis, I applied Descartes's (1637) four rules of thinking, as follows: (i) avoiding precipitancy and prejudice, (ii) dividing thoughts into many parts, (iii) progressing to more complex knowledge, and (iv) constructing detailed accounts.

I sought to avoid precipitancy and prejudice through continuous discussion with the panel members and by involving participants including the students in all areas of data collection and data analysis. The completion of semi-structured interviews, student reflections in the form of know and do questions (see Table 4.3, Chapter 4), lesson recordings, and panel member feedback on interview themes allowed my thoughts to be divided into many parts. In addition, multiple iterative methods of data analysis helped move my understandings forward to more complex knowledge. Meanwhile, the collection and recording of the narrative, alongside interview transcripts, added to the construction of detailed accounts. Further, throughout the data collection and analysis phases of this research, I sought to address bias by actively seeking and investigating disconfirming

evidence. When seeking disconfirming evidence, I specifically focused on atypical and deviant scenarios and characteristics (Booth, Carroll, Ilott, Low, & Cooper, 2013). I also included two qualitative methodologies (narrative inquiry and autoethnography), reflexive journals, and multiple iterative data analysis procedures to support the identification of the disconfirming case/s.

Actively seeking dissonance and applying Descartes's rules of thinking that were aligned with my interpretation of bracketing in hermeneutic phenomenology. Within hermeneutic phenomenology, it is necessary to develop awareness of pre-existing beliefs, and then examine and question these beliefs in light of new evidence (Friesen et al., 2012). As Cooley (1926, p. 69) suggested, "one's subjectivity needs to be understood if only to avoid it". Friesen et al. (2012, p. 25) argued that hermeneutic phenomenology and autoethnography researchers are encouraged to "shift back and forth", focusing on personal assumptions and then returning to view experiences in new ways. In this manner, any preunderstandings are bracketed to be later revisited as acumen. As Friesen et al. (2012, p. 25) suggested, I addressed bias by "simultaneously embodying contradictory attitudes of being scientifically removed from, open to and aware" of O&M learning and teaching, while also interacting with participants in the midst of their own experiencing.

Strengths and Limitations

A particular strength of interpretive research is that it gives a voice to those "who may otherwise not be allowed to tell their story or who are denied a voice to speak" (Denzin, 2014, p. 22). According to Denzin (2014, p. 10), interpretive research reminds researchers to probe the "historical, cultural and biographical conditions that moved a person to experience the events being studied". Interpretive research motivates investigations into shared meanings, cultural and social realities, and the subtleties of human communication and action (Bakker, 2012). In particular, interpretive research provides the basic tenets of research for the phenomenon of O&M—a phenomenon that is inherently complex contextually, spatially, and environmentally, and time dependent. For Orlikowski and Baroudi (2011, p. 22), interpretive research is explicitly designed to "capture complex dynamic social

phenomena", such as O&M. The O&M phenomenon is inherently complex—contextually socially and spatially within the environment and over time.

However, interpretive research is not without criticism (Mack, 2010; Matta, 2015). Two pertinent criticisms are identified in the literature. The first criticism is that the research, being qualitative, cannot be generalised to other situations, which brings into question any verification procedures. As Schwandt (2000) noted, there are inherent difficulties within the interpretive perspective in defining what understanding actually is, and thereby any justification of claims to understand. Therefore, this aspect of the research needs to be acknowledged and incorporated into the research design (see section on bias).

A second criticism is that the interpretive perspective assumes a subjective, rather than objective, ontology. Interpretive research places the human subject at the centre of meaning making because, as Oliver (2011, p. 412) argued, "no a priori theory could possibly encompass the multiple realities that are likely to be encountered" by participants. However, Braddick and Atkinson (2011, p. 11) argued that there is "no single human at the centre of meaning making, only as part of bigger cultural system with an already scripted discourse". Considering these criticisms, I engaged the panel of specialists to add validity and verification to understandings and themes as they emerged in the research. The panel feedback also assisted in addressing criticisms of narrative inquiry and autoethnography.

Collectively, narrative inquiry and autoethnography, as representatives of the interpretive paradigm, are also criticised for subjectivity and lack of in-depth analysis (Campbell et al., 2004; Glesne & Peshkin, 1992). Autoethnography is particularly criticised for self-indulgence, absorption and narcissism (Anderson, 2006). More broadly, the author of autoethnography is accused of making assumptions and lacking generalisation and analysis (Anderson, 2006; Atkinson, 2006; Maguire, 2006). Feedback from the panel, sharing the themes and interview transcriptions with participants, and ongoing dialogue with my colleagues kept me grounded throughout the research and reduced any uprising of self-importance.

There were two main strengths in the data collection and data analysis for this project. The first strength was that, as far as the researcher could determine the in-depth interrogation of the structure and social learning in O&M lessons was unprecedented in the O&M research field, while the depth of the longitudinal data from individual lessons over the semester and the multiple methods of analysis applied to the data aided the triangulation and validity of data. Cross-checking with the panel, consistent professional discussions with my colleagues and parallel theoretical reading provided a variety of lenses as I moved reflexively in and out of the data. The overarching interpretive design encompassed any emergent difficulties with consent, ethics, and numbers of participants, while the underpinning autoethnographic and narrative tools allowed for detailed self-reflection as I progressed with the students' programs over the semester.

The interrogation of only a small sample of my own lessons was a major limitation in both the data collection and data analysis. An additional constraint was the comparison of single one-to-one interactions that are specific to O&M lessons with whole-class learning. The absence of interrater reliability for identification of wait times, morphemes, utterances, and processual verbs influenced the reliability of the data in these areas. The limited numbers of lessons and, in some instances, small timeframe of the lessons were additional considerations for future research.

The research aims for this study were to understand the practice of O&M learning and teaching, and to understand the alignment of O&M with the Australian Curriculum. In this chapter, I have described the philosophical and methodological underpinnings of this research, as used to achieve these aims. I have discussed the four main methods of data collection as the semi-structured interviews, observation and recording of student lessons, detailed self-reflection, and panel responses. In consideration of the complexities of learning without vision, I appropriated several data collection and analysis models, and described the application of the adopted thematic, discourse, and pattern analysis to the data. In the next chapter, I return to the use of vignettes and to Bronfenbrenner's bioecological model to detail the results from the data analysis.

Chapter 5: The Macrosystem.

Understanding the Cultures of VI, O&M, and Education

As stated in Chapter 2, my research was designed to provide groundwork opportunities for educators to improve the learning outcomes of students with VI. This was achieved through conducting research that aimed to gain a better understanding of O&M learning and teaching, and draw attention to the alignment of O&M with the Australian Curriculum. To capture and analyse the O&M learning experiences, I used an interpretative methodology comprising hermeneutic phenomenology, narrative inquiry, autoethnography, and insider researcher (see Chapter 4).

I developed a conceptual framework (see Chapter 2) to align with the research methodology, and identified Bronfenbrenner and Morris's (2006) bioecological model of human development as part of the framework. This provided an umbrella theory of student development. Under the canopy of this theory, I then explored pertinent subsumer notions, such as the national and international curriculum agendas, pedagogy, space versus place, and text-processing strategies for students with VI (see Chapter 2), and critically evaluated the literature to highlight the limitations associated with the traditional rhetoric of O&M learning and teaching (see Chapter 3).

I present the research results over four chapters. The current chapter, Chapter 5, focuses on the data from the interviews with the parent and teacher, and the narratives from the panel of O&M specialists. Chapter 6 then concentrates on the results from the microsystem pertaining to understanding the alignment of O&M with the Australian Curriculum. This chapter also includes disconfirming evidence of this alignment. Chapter 7 continues to present the results from within the microsystem, with particular attention devoted to understanding the practice of O&M learning and teaching. Chapter 8 presents the results concerning O&M learning and teaching and the self-agency of students with VI. In an attempt to continually broaden the narrative on O&M learning and teaching, each chapter concludes with a reflection that is used to re-examine the results that have just been reported.

The parallel narrative provided by the reflections in Chapters 5 through 7 is designed to broaden and deepen the reader's knowledge and understanding of the possible range of effects of VI on student learning and development. This helps ensure that the reader is grounded in their understandings and connection to the evidence. As explained by Neyman (2011, p. 31) in "Giving My Heart a Voice", this parallel narrative approach:

> makes the whole meaning of the inquiry transparent and comprehensible to its readers. Thus, readers get a chance to make their own inferences and conclusions based on the presented vignettes. Involving readers to think and infer, adds value to auto-ethnography as a method.

In line with hermeneutic phenomenology, which focuses on understanding the human condition, the series of results chapters have an educative quality that is intended to provide the reader with a better understanding of what it is like to be a student with VI. Inferences and conclusions for each section are written to help lay the foundations for richer interpretations of each of the sections. The introductory information provided by these interpretations is an adjunct to the reporting of research results. The goal is for the research to have a transformative quality, where new insights are made more evident (Berry, 2006).

In the current chapter, I present the data that are relevant to better understanding the cultures of O&M, VI, and education. I reiterate the ways that bioecological developmental systems are applied to students with VI, and explore the broader understandings of VI and O&M in the macrosystem. Bronfenbrenner (2005, p. 81) observed that the macrosystem is "a societal blueprint for a particular culture". He maintained that the ideologies of the macrosystem result in "similarities among the lower order systems" (p. 47) to which cultural groups are exposed; hence, they are interconnected. As a consequence, the macrosystem is thought to affect the nature of the exo-, meso- and microsystems that, in this study, are operative for the student with VI. In this study, the "outermost ring" (Bronfenbrenner, 2005, p. 81)—in other words, the macrosystem —is represented by the values and culture surrounding O&M, VI, and education. Therefore, the macrosystem results are reported in that same order—beginning with O&M, followed by VI, and finally followed by education.

A prominent feature of the macrosystem for this study is the perpetuation of the values and beliefs influencing the development of students with VI. Gaining a clearer understanding of these values and beliefs may provide valuable information for teachers. This understanding could be used to support the overarching transformative purpose of my research—namely, to improve the learning outcomes for students with VI. The transformative purpose of my research involves reflecting on the subcultures and characteristic patterns affecting the agency of students with VI. Such a process is supported by Bronfenbrenner (2005, p. 47), who recommended that the focus of research include a description of "the ecological environment in which a given cultural group finds itself". Further, the process is congruent with my autoethnographic research. Autoethnographic research involves writing about specific cultures with which the autoethnographer has extensive experience, while studying awareness of self within these cultures. In my research, these cultures are O&M, students with VI, and education.

Throughout the reporting of the results, I use the data analysis to reflect on the outcomes of the interviews with parents, teachers and panel members, and to interrogate my own teaching records for the lessons with the three students during the semester. In keeping with my chosen interpretative methodological approach, I portray the results in a series of autoethnographic vignettes, dialogue extracts, diary entries, and lesson plans. I employ direct quotations from the participants as section headers. These subheadings highlight the major themes identified in the analysis and give stronger voice to the participants. Each section concludes with a summative reflection on the vignettes and scenarios.

"Orientation and Mobility … And What is That Again"

(Annie, student with VI)

The subheading used for this subsection is a direct quotation from Annie, the six-year old student with VI who had a congenital VI, who was introduced in Chapter 4. Although Annie had been participating in O&M lessons for two years, she was still unsure about what exactly O&M comprised. Annie's quotation represents the overarching theme that emerged through the interviews and discussions regarding the culture of O&M, and is indicative of the way O&M is perceived at the macrosystem level. Given that even Annie was not sure what O&M comprised, the quotation reiterates my point regarding the need for an underlying educative quality to the reporting of the results.

The data at the level of the macrosystem indicate that O&M cultures have both an explicit and implicit dimension. The explicit aspect relates to the practical aspect of moving around and through environments. This explicit awareness of the mobility component of O&M aligns with the traditional and accepted rhetoric surrounding O&M learning and teaching. As reported in Chapter 1, O&M is publicly accepted and referred to as travel by people with significant VI using a long white cane. The implicit or implied dimension of O&M learning and teaching refers to knowhow— and specifically, a particular type of knowhow that is available primarily to O&M specialists. This knowhow is less readily imagined by sighted people who have not been involved in O&M, as it involves non-visual ways of problem solving and experiencing the world.

During the interviews, the teacher and parent predominantly shared explicit dimension awareness of O&M, whereas the specialist panel members shared experiences that aligned more with the implicit dimension—those that relate to the closed self-perpetuating O&M culture. A particular example of the explicit dimension came from Donna, the class teacher. She acknowledged that she had no previous experience with O&M, and described her understanding of O&M as simply *"teaching them [students with VI] how to … cope with that [their impairment] in all different environments, so like in the school environment, outside school, all that sort of thing".* According to Donna, O&M is *"just making*

sure that she [Josie, the student with VI] can … actually get around". A more extreme example came from Geoff, Kellie's father. Although he had experienced years of exposure to O&M learning and teaching through his daughter, Kellie, who had a VI, he described O&M in naïve and vague terms. For him, O&M was just helping *"her [Kellie] overcome"* her *"difficulties"*. O&M involves *"making things easier for her [Kellie] to learn"*, so that Kellie *"could learn properly"*. Geoff's description implies a limited awareness of even the simplistic and explicit dimension of understanding of O&M.

Examples to illustrate the implicit dimension came from comments made by the panel of specialists (Lizzie, Lee, Jenny, Maggie, and Reginald). They helped illuminate the uncertainty offered by Donna and Geoff about O&M learning and teaching by indicating the tacit knowledge of the culture of O&M. Tacit knowledge includes the skills and knowhow that derive from aspects of knowledge transfer that extend beyond knowledge that is codified, such as knowledge gained via apprenticeship, observation and practice (Nye, 2017; Polyani, 1969; Schmidt, 2012). Tacit knowledge was articulated by Schmidt (2012, p. 167) as practices by workers in all facets of life in documenting "certain recurrent issues in their work for the benefit of themselves and their colleagues in dealing with the usual troubles of their everyday working lives".

As Lizzie explained, "*O&M is imbued with tacit knowledge that people who have developed competent non-visual travel skills understand, and others don't".* She continued: "d*escribing O&M provides different information to learning about O&M by doing it, and only the latter provides real insight about what matters in the non-visual world"*. She even went so far as to identify the broader public as *"O&M outsiders"*, and claimed that "*without putting a blindfold on",* "*O&M outsiders"* have difficulties "*caring"* about and understanding O&M. She continued:

> *I think it's unrealistic for O&M specialists to expect others to understand O&M without an immersion experience, so that means we either need to (a) provide plenty of immersion experiences or (b) accept their unknowing, tell people what we want them to do to support an O&M program.*

Lee, a second specialist panel member, stated that "*O&M is never considered as part of a nonvision impaired person's life and so is cloaked with [a] guessing radar"*. Maggie added: "*The nature and function of O&M is poorly understood"* and is often perceived as the *"isolated exercise of getting from A to B"*. Maggie quantified this statement by listing the *"fundamental component aspects of O&M such as drawing on cognitive skills, concept development, information processing and problem solving skills and strategies"*, and arguing that these are not readily apparent to outsiders.

As stated by Brannock and Golding (2000, p. 1), "knowledge of the environment is learnt incidentally by sighted children as they grow and develop". Students with VI often lack the same incidental learning opportunities afforded to sighted students through vision. These opportunities are frequently not readily provided during the learning experience, nor made accessible to students with VI at a later date. Therefore, students with VI often require explicit teaching and first-hand experience to learn to interpret their environments through inquiry, problem solving, responsibility, and movement planning (Brannock & Golding, 2000). As "outsiders", neither Geoff nor Donna appeared to be privy to this tacit value and purpose of O&M. Donna echoed this idea in her closing statement: *"if you don't know what it looks like, it's very hard to implement"*.

"Sighted People don't Understand [the] Blind World"

(Lizzie, panel member)

The subheading for this subsection came from Lizzie, a panel member who highlighted through her discussions that she believed there is a general lack of awareness on behalf of sighted people of the pervasive influence of VI on learning and development. Being aware of the divide between the exclusively sighted world and the world of students with VI—described by Lizzie as the "blind world"—is deemed relevant because this awareness helps draw attention to how easily miscommunication can occur, and the ways this miscommunication might negatively affect the self-regard of the student with VI. Most sighted people find it difficult to think about interpreting the sociocultural and physical environment from a functional non-visual perspective. Sighted people are so immersed in

their own sighted world that they are largely unable to consider the reality of the student with VI. Sighted "outsiders" (Lizzie, panel member) often frame their understanding of the influence of VI as an access issue, inability or ineptitude, or, alternatively, as super sensory capabilities (Strechay, 2017).

During the interviews, Donna (the class teacher), Geoff (the parent) and the panel of specialists shared their understanding of the influence of VI on development and learning, and their perceptions of the challenges involved in interpreting the non-visual environment from a visual perspective. In sharing her understandings of the influence of VI, Donna implied that her own learning would be comprised if she had a VI. She described herself as a *"visual learner".* According to Spanella (2018), the visual learning style is associated with learning through images, where learners first need to see what they are required to know and do. Visual learners think about the world using a visual logic and tend to perform most of their thinking within this framework (Alian & Shaout, 2017; ACARA, 2017c).

Thus, for Donna, the influence of VI on learning is primarily one of access. She identified the issue of access to the printed curriculum: "*she [Josie, the student with VI] can't see the work"*. She also stated that class work *"needs to be made bigger"*. Consistent with this visual way of understanding, Donna described her role of teacher as ensuring Josie had "*full access to all the content in that lesson"* and identifying which adjustments are needed to ensure "*better access".* Donna justified issues of inaccessibility to curriculum content by referring to stereotypes of VI, and stated that, even though Josie could not see the work, *"her hearing [was] really good"*. However, Donna did allude to the social effects of VI by conceding that Josie's inability to see *"the non-verbals … makes it very hard"* for her. However, even this observation derives more from a visual standpoint than from a position of considering how best to shape Josie's concept development, based on what she can do.

Geoff was also predominantly interested in the visual. He discussed his increasing awareness of his daughter's (Kellie's) functional vision, stating "*I realise … what she can see and what she can't see … you know".* During a shopping visit with Kellie, he observed the influence of Kellie's VI on her awareness of what is present in the environment. He

demonstrated an understanding of the way Kellie's functional vision affects her travel in the environment when he divulged: *"I say to her, 'go and get that trolley over there', and she says, 'there's no trolley over there' … [and] I say, 'well, walk a bit closer'".* The ease with which sighted people take for granted the array of environmental visuals referenced for simple and purposeful movement was highlighted when Geoff continued: "*she [walks really close to the trolley and] says, 'oh, yeah, there it is there'. I realise then … that she's got to be … nearer to something before she can see it".* Kellie's VI clearly has a significant influence on her learning and development.

The documented effects of VI include delays in development of the sensory, motor, cognitive, conceptual, social, self-concept, and language domains (Strickling, 2018). Neither Donna nor Geoff demonstrated a broad understanding of the effects of VI. Throughout their interviews, their interpretation of VI was restricted to one of visual "access". All their examples remained restricted to the visual sense, such as needing to be closer to see or to have something made larger to see. According to their way of thinking, vision remains the sense channel for their own learning and development, and for that of the child with VI. Further, neither Donna nor Geoff seriously addressed the effect of VI on the development of concepts, gross motor skills, spatial awareness, social skills, self-determination skills, and problem-solving skills, nor did they mention any alternative ways of learning via senses other than vision. Donna's and Geoff's interpretations remain narrowly confined to vision.

After reading the transcript of the interviews from Donna and Geoff, the panel of specialists expanded on the difficulties a sighted person has in understanding the influence of VI. The responses from the panel of specialists to the transcripts highlighted the ways a sighted person's lack of understanding and awareness of VI continues to define the culture of VI from the outside. For example, Maggie felt that Donna's focus was "*almost solely on the student's ability to compensate for her VI in order to function at the level of her sighted peers, as if the visual sense is the only difference"*. Maggie expressed concern for the

narrowness of understanding when describing the lack of awareness as an issue that relates to being cognisant of "*the breadth of impact of VI on child development and learning"*.

Lee stressed his perception of the discomfort of the *"general public in sensing how to respond sincerely about the topic of vision impairment*". Lee added that, from a sighted person's perspective, *"vision impairment does have some culturally maligned awkwardnesses as a disability"*. He continued:

> *The visual perception system is not one that has very many verbal commonalities in ordinary life. People look at things without thinking about looking at them. It's only when asked to be quite mindful about their sensory information that they realise what they are seeing is what they are seeing. And that takes more energy. Usually our consciousness bypasses the fact that we are using a sensory system, particularly when it is the visual one.*

Lee also addressed the difficulties in *"thinking about an alternative manner by which to attend to environmental cues".* In an email in response to the interview transcripts from Geoff and Donna, Lee wrote that their *"way of 'seeing' is very difficult to shift not just culturally, but [also] because we are physiologically inclined that way".*

For people with vision, thinking in visual terms is the focused and dominant way of thinking, like a train running on a visual railroad track. This is because vision accounts for over 80% of learning and development (Ferrell, Alicyn, & Spungin, 2011), and, as identified in Chapter 1, is a unifier of our senses. Shifting focused thinking along a visual continuum to non-visual thinking requires measures of metacognitive divergent thinking and creativity—a switch in the track (Pringle & Sowden, 2017). Unless the sighted person is immersed in activities beyond the everyday visual continuum, there is less physiological need to shift to alternative and non-visual ways of thinking (Pringle & Sowden, 2017).

Accurately understanding the influence of VI is further compromised by the low-incidence and heterogeneous nature of VI, and even more so by media representations

of people with VI. Strechay (2017, para, 8) argued that there are “many depictions in the media that generate and perpetuate limiting assumptions about what people with disabilities can accomplish, particularly concerning vision loss”. Inaccurate depictions of VI, stereotypes and misinformation add to difficulties for “*sighted outsiders”* to understand the influence of VI on learning and development. Students with VI regularly encounter situations throughout their lifetime in which they are required to explain their “visual function to others who may misunderstand it” (Guerette, Lewis, & Mattingly, 2011, p. 287). The students’ understanding of what is considered “good or bad in regard to seeing” (Guerette et al., 2011, p. 294), and consequently their self-esteem as a person with VI, is affected by the way VI is discussed and represented by the surrounding systems and individuals.

Inclusive primary school education is dominated by a visual culture in which the vast majority of teachers and students are visual. VI is such a low-incidence impairment (Douglas et al., 2009) that most teachers and students have minimal past experience regarding VI. Further, students with VI are a heterogeneous group; thus, each student is different and requires diverse approaches (Douglas et al., 2009). The school education system tends to retain predominantly visual ways of teaching and learning, with only tokenistic measures being introduced to cater for students with VI (Nimmo, 2008). Even the measures that are introduced are subject to incorporating judgemental ways of thinking about VI, where students are taught to disregard their own selves. For example, in his narrative, Whitburn (2014a, p. 624) shared how, in his experiences as an Australian school student with VI, he was required to “duck and weave the deficit discourse in inclusive education”.

“Learning Equals Reading and Writing” *(Lee, panel member)*

The subheading for this section came from a quotation from Lee, a panel member. This quotation exemplifies the third overarching theme regarding the values and culture of the macrosystem—namely, education. For Armstrong (2016), the culture of education represents the art of teaching and learning. The culture of education (see Chapter 2)

refers to the canonical methods employed by educational institutions, such as standardised testing, curricula, and pedagogies. It also includes the outcomes that society intends for students to accomplish through its educational investment (Bruner, 1996). Therefore, the culture of education focuses on the factors of importance in education and schools; the way education is constructed and portrayed; and, in terms of my research, the expectations and perceptions of learning for students with VI who experience O&M.

Donna typified my experience of the identity of classroom teachers as frenetic and classrooms as chaotic places. On the day of the scheduled interview, she had doubled-booked her appointments and was restricted to 15 minutes of interview time. Within that time, the interview was interrupted by colleagues needing to discuss a student, telephone calls from management, and the need to clean and set up the class for the following day. Donna identified the crowded nature of the curriculum and the continual addition of curriculum agendas, stating, "*I feel like it [O&M] is just another program that's been added to the timetable"*. She continued:

> *You know, being a teacher, there are a lot of things on your mind and so you think that's the lesson done, next one, you don't actually think about all the other little things that would be going on for that kid.*

In my field notes, I highlighted another example of educational culture. On one occasion earlier in the term, I arrived to collect Josie for her O&M lesson, only to find that Donna—who explained she was unaware of my scheduled visit—had set an assessment for that period. At Donna's request that "*the assessment needed to be done"*, our scheduled O&M lesson was cancelled. I noted in my diary Donna's comment when Josie put her head down on her desk in tears. Donna told Josie: "*your assessment comes first … sometimes you just have to do the work*". Donna appeared to reference "*work"* as within the educational culture of testing and normative assessment. Her reference to what is important in her classroom raised the potential dichotomy that, according to Donna, O&M learning is not framed as "*work"* and, by association, is not important and not part of the culture of

education. According to P. Pagliano (personal communication, July 30, 2018), the visual sense and visual learning are “constantly being privileged to the detriment of other senses”.

The culture of education (see Chapter 2) is grounded in both politics and economics (Gradstein, Justman, & Meier, 2005). Education is imbued with notions of crowded curricula, competing priorities, and grand narratives regarding what is considered important learning. Donna’s declarations about time constraints and curriculum hierarchy are indicative of systemic barriers to inclusive education practices (Kuhl, Pagliano, & Boon, 2015). The overarching conceptualisation of education, VI, and O&M continue to influence the attitudes and hence the ways of thinking of sighted outsiders towards learning and achievement for students with VI. Following a reading of the transcripts from the interviews with the class teacher (Donna) and the parent (Geoff), Lee perceived that the most significant assumption was around what constitutes learning. For Lee (an O&M specialist panel member), reading and writing were the predominant mainstream activities occurring in the classroom, yet activities designed to cater for the student with VI, such as O&M, were not included in classroom activities. Lee commented on the prioritisation of academic class work such as reading and writing. He stated: *“Class work has greater priority and importance”*. He added that learning in the more *“general areas of life … may not connote the same sense of purpose towards gaining a learning experience opportunity”*. Lee continued:

> *Parents and teachers alike may not be able to see more far-reaching developmental milestones and personhood skills, which are not in a curriculum as such because they are either taken for granted, or develop external to curricular studies in the first place.*

Jenny, a specialist panel member and experienced teacher, empathised with Donna upon reading the interview transcript and this diary entry. Jenny suggested that perhaps Donna had not received *“support and training in the speciality disability area of VI”* and, although Donna was *“keen to see improvements in the student’s level of focus”,* there were “*numerous competing demands on her [Donna’s] time”*. Jenny identified that this led Donna to imply *“a negative impact of O&M lessons on the student’s class time”*. Jenny believed that

classroom teachers do not always "*have [the] capacity/energy/ time/ motivation level, [and] skill to support such complex intervention".* For Donna, Lee, and Jenny, awareness of the difficulties of implementing additional programs in the current culture of education (see Chapter one) was a common theme in the interviews. Australian teachers, according to Morgan and Hansen (2007), are concerned with the undue emphasis placed on academic subjects, and the "difficulties teacher's face given restrictions of time caused by a crowded curriculum" (p. 105). Consequently, "systematically and sequentially" (Pagliano, 2005, p. 343) implementing specialist programs, such as O&M, only adds to the complexity of curriculum programming for classroom teachers.

Reflective Discussion: Understanding the Cultures of VI, O&M, and Education

Inclusive education, although complex, is generally conceptualised as the provision of and access to equitable learning opportunities for all students (ARACY, 2013). The *Convention on the Rights of Persons with Disabilities* in 2008 (United Nations Division for Social Policy and Development Disability, 2016) proclaimed that students with a disability should be guaranteed the right to inclusive education at all levels, regardless of age, without discrimination, and on the basis of equal opportunity. Further, the United Nations Division for Social Policy and Development Disability (2016, article 24, para. 3A) indentified that state parties must "specifically enable the facilitation of orientation and mobility skills".

There is a continued lack of awareness within school communities regarding the equitable nature of inclusive practice for students with VI, particularly around the implementation of O&M. For the last 20 years, since the idea of an ECC was formally politically acknowledged and mandated in the USA (Hatlen, 2006), there have been continuous calls by specialists within the field of vision impairment (Hatlen, 2006; Mclinden et al. 2016) for equity in education for students with VI. A literature review by Nimmo (2008) stressed the importance of discovering methods to help successfully incorporate the ECC into inclusive education settings. In a similar literature review, Douglas et al. (2009) called for the allocation of time beyond the core curriculum for disability-specific learning, such as O&M, for students with VI. Later, Khochen (2016) identified that the acquisition of additional

disability-specific skills, such as O&M, “supports students with VI to access the curriculum on [an] equal level to their peers” (p. 320). However, the United Nations Children's Emergency Fund [UNICEF] (2013) determined that children with a disability continue to experience different forms of exclusion. Khochen (2016, p. 3) concluded that, while inclusion practices for students with VI in Lebanon have been in place for over a decade, Lebanese “schools are a long way from delivering these [inclusive practices] in full” and that “no full inclusion has been reached”. A review of Australian inclusive education practices by Shaddock (2009) revealed that the barriers to inclusion included lack of time and school support and inadequate teacher training and resources. In addition, Kuhl et al. (2014, p. 6) claimed that teachers reported that “inclusion often made their work more complex and more demanding”.

Improving learning outcomes for students with VI and challenging inclusive education conceptualisations requires change within the broader Australian and international systems and cultures (Australian Research Alliance for Children and Youth (ARACY), 2013; World Health Organisation, 2011). However, enacting social change is a multifaceted process. The complexity of social change theory was identified by Parton (1996, p. 4), who stated that “ideas and values are crucial in shaping human action and can thereby bring about change, in Durkheim’s view, changing ideas and values are themselves the product of change”. Therefore, enacting any form of social change for students with VI necessarily requires increasing awareness and understanding of all aspects of O&M learning and teaching.

The interviews with Donna and Geoff and feedback from the panel reminded me that I have much work to do in understanding, changing and/or transforming the ideas and values that surround VI and O&M. Although Jenny (panel member) stated, “*of course, it is tempting to take two people’s feedback as a measure of your practice, but it is not the whole picture”*, the panel all spoke of their personal experiences of similar reactions and predisposed expectations regarding VI and O&M from sighted outsiders. As Reginald (panel member) said, “*We’ve all been there”*. Maggie (panel member) was likewise empathetic, exclaiming that she had “*Personal experience of receiving the similar subjective responses”*. The data

from the teacher and parent interview and comments from the panel of O&M specialists highlight that there remains limited awareness of the influence of VI on learning and development, and a limited perception of O&M as only a set of technical skills. This represents a further example of the single reality and circular narrative underpinning the O&M profession (see Chapter 3).

Changing preconceived ideas and values of VI and O&M is undeniably a significant feature of any future social change and research. However, I disagree with Lizzie (panel member), who stated that awareness of the influence of VI can only be achieved by "*putting a blindfold on"* sighted people. As Ambrose-Zaken (2015) suggested, placing a blindfold on sighted people assumes a single reality of VI. Students with VI are unable to simply add or remove a blindfold; their experiences of VI are more deep seated. Neither do I subscribe to Lizzie's (panel member) suggestion of "*just telling them [teachers] what we want them to do"*. Neither, as educators nor as O&M specialists, do we have the authority to instruct colleagues on how they must act. Further, I do not subscribe to the argument proposed by Magalhaes et al. (2014) that only O&M specialists can provide an orientation program. As identified by the Australian Research Alliance for Children and Youth (ARACY) (2013, p. 18), teachers are highly skilled practitioners who "must accept ownership of the process and a commitment to all children in a class". As O&M specialists, if we continue telling teachers what we want them to do, or withhold our knowledge so that only a specialist can complete the O&M learning and teaching, we are supporting the idea of O&M being a singular discipline that is separate from the mainstream culture of learning and teaching (see Chapter 3). I believe that the alternative offered by Jenny—that "*the learning might be around how we could work differently"*—more closely aligns with the aims of this research.

Chapter 6: The Microsystem.

Understanding the Alignment of O&M with the Australian Curriculum

An inequity was found to exist between the education and learning outcomes for Queensland students with disabilities and their peers without disabilities (see Chapter 1) (DoE publishing as DET, 2017). Similar disparity was found between the lifelong and post-school outcomes for students with VI and their sighted peers in the USA (AFB, 2015b). Following the release of the Queensland Deloitte disability review (DoE publishing as DET, 2017), the Queensland Government called for research into teaching practices for students with disabilities, with the aim of building an evidence base regarding "what works" for students with disabilities. My involvement with students with VI as an O&M specialist and as a teacher of students with disabilities led me to view O&M as one plausible area of "what works" (DoE publishing as DET, 2017, p. 141) for students with VI.

Investigating O&M learning and teaching was identified as one plausible way of provide educators with opportunities to facilitate improved learning outcomes for students with VI. In my research sought to understand the alignment of O&M learning and teaching with the Australian Curriculum, and to understand the practice of O&M for students with VI in the Queensland DoE. I chose to achieve this by first establishing a conceptual framework (see Chapter 2). The conceptual framework was designed to foreshadow the theories and notions that were believed to be relevant to O&M learning and teaching, and included Bronfenbrenner and Morris's (2006) bioecological model of development and subsumer notions (Ivie, 1998) surrounding O&M learning and teaching (see Chapter 2). An extended literature review (see Chapter 3) revealed a gap in the literature on the practice of O&M learning and teaching, and the alignment of O&M learning and teaching with the Australian Curriculum.

Using a narrative and autoethnographic approach underpinned by hermeneutic phenomenology (see Chapter 4), I interviewed a parent and a teacher, and sought validity and reliability from a panel of five O&M specialists. I also audio-recorded the O&M lessons of three primary school students with VI (Josie, Kelly, and Annie) over one school semester

(two school terms). Through completing a thematic analysis (see Chapter 4), I determined major themes and presented the results through the lens of Bronfenbrenner and Morris's (2006) bioecological systems using a series of vignettes and diary notes. The results from the parent and teacher interviews (see Chapter 5) highlighted their lack of awareness of the influence of VI, and the role of O&M in learning and development for students with VI. The analysis of the interviews also highlighted the effects of the current educational objectives and parameters on learning and teaching for students with VI.

In this chapter, I present the data related to the curriculum resources and learning activities and spaces, as well as the social and cultural aspects of the classroom and playground (McLinden et al., 2016), as reflected within the microsystem (see Chapter 2). I present the results through vignettes, lesson plans and diary entries that have been collated from the O&M lessons over one school semester with each of the three students with VI—Josie, Kelly, and Annie. The themes identified during the thematic analysis (see Chapter 4) were drawn from the elaborations of the Australian Curriculum general capabilities and specific year level achievement standards for English and mathematics. I interrogated each of the lessons across four areas of the Australian Curriculum general capabilities: literacy, numeracy, personal and social capabilities, and critical and creative thinking (see Chapter 2). I begin by redefining the terms "literacy" and "text", before proceeding to present the data on the alignment of O&M with the four general capabilities.

Literacy

The Australian Curriculum (ACARA, 2018h, para. 2) defines literacy as the "knowledge and skills students need to access, understand, analyse and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions, interact with others and participate in activities at school and in their lives beyond school". The Australian Curriculum General Capability of literacy is divided into four elements with two overarching processes. These two processes are identified as comprehending and composing text, and the four interrelated elements are text, grammar, visual, and word knowledge.

The Australian Curriculum presents a broad definition of "text" (see Chapter 2) as "the means for communication", and includes all types of "objects, photographs, visual images and spoken words" (ACARA, 2018h, para. 4). For the purposes of this research, texts are defined as any object, environment, person or space with which a student is engaged or attending to as a means for communication about his or her environment (Queensland Government, 2017). For students with VI, these broad definitions of texts from the Queensland Government and from the Australian Curriculum encompass the objects, environments and sociocultural spaces that are significant and distinctively representative of the context of O&M learning and teaching. Texts represented in the following vignettes include environmental print, buildings, pedestrian traffic flow, and the physical spaces of classrooms.

"It's like a picture walk, you know, sort of".

(Class teacher of Annie, student with VI)

Annie (Year 1, student with VI) and I were exploring a number of objects found in one of the play spaces of her classroom. Annie's class teacher observed Annie and me during our O&M lesson, and commented on the similarity of O&M to explicit reading comprehension. As Annie's class teacher observed me, she related the O&M lesson back to her own classroom reading practices and strategies. One of these strategies was the "picture walk". The above quotation from Annie's class teacher provides rare insight into the overall themes that emerged throughout the lessons with all the students with VI regarding the alignment of O&M with reading comprehension strategies, such as picture walks—particularly in regard to literacy. This is because aligning O&M with text-processing strategies defies the traditional circular narrative of O&M (see Chapter 3).

A picture walk is a shared reading comprehension strategy that teaches emerging readers to use pictures as clues to understand the meaning of new or unfamiliar texts (Goalbook Toolkit, 2018; Reading to Kids, 2002). A book or picture walk also assists the student to understand the structure or purpose of the text, and is generally executed prior to any read aloud or independent reading session. The general idea of a picture walk is to

stimulate students' curiosity, activate their prior knowledge, and make inferences about information presented in the text (Reading to Kids, 2002). During a picture walk, the adult poses dialogic questions (Edwards-Groves et al., 2014) and provides targeted feedback (Hattie, 2003). Dialogic questions and feedback to both task and process (see Chapter 4) enable students to actively participate in understanding the text, and encourage students to evaluate their answers to the questions posed during the picture walk. According to Alexander (2017, para. 1), dialogic questioning and teaching harnesses the "power of talk to stimulate and extend students' thinking and advance their learning and understanding".

An O&M picture walk with Josie (Year 6 student with VI).

I begin this section of the microsystem results by reporting the alignment of Josie's (Year 6 student with VI) O&M lessons and lesson plans with the Australian Curriculum general capabilities literacy continuum. I use excerpts from Josie's O&M lessons to sequentially highlight areas where O&M is aligned with the four literacy continuum organisers: comprehending text, text knowledge, word knowledge, and visual knowledge.

A major component of Josie's Year 6 O&M was a transition program to secondary school. A primary and traditional outcome of many O&M transition programs is that the student with VI is able to "mentally map spaces and possible paths for navigating spaces" (Lahav, 2006, p. 174). However, a transition program also includes the explicit teaching of many strategies that the student with VI requires to interpret the numerous sociocultural, learning, and spatial environments or texts of the new school. Transition to high school, though generally a positive experience, can be tumultuous for many. According to Suldo and Shaunessy-Dedrick (2013, p. 195), high school incorporates "more difficult coursework, different organisational structures, new peers, more students and different expectations from teachers". In addition, for students with VI, navigating an unfamiliar environment can present significant difficulties. For some students with VI, learning about and exploring the new school's social, cultural, organisational, and spatial environments can be a long and daunting process. In an attempt to make the process less intimidating for Josie, her O&M transition program was designed to develop her comprehension strategies. This was organised as a

picture walk devised to incorporate a broad range of secondary school texts. Many years of working with Josie had made me familiar with her ability to pose inferences about her environment when given small pieces of information. Nevertheless, Josie was continuing to develop her capabilities. She achieved this by using a range of comprehension text strategies to evaluate the strength and accuracy of her inferences. Text-processing strategies (see Chapter 2) are important for comprehension.

The Australian Curriculum English (ACARA, 2018c) is divided into two modes of learning—receptive and productive—and contains three interrelated organisers: language, literacy, and literature. The Australian Curriculum English is further underpinned by the literacy element of the general capabilities (ACARA, 2017c). The achievement standard for the Australian Curriculum Year 6 English receptive mode is: "students compare and analyse information in different and complex texts explaining literal and implied meaning" (ACARA, 2018c, para. 7). The Australian Curriculum Year 6 English literacy organiser achievement standard is defined as the use of "comprehension strategies to interpret and analyse information and ideas, comparing content from a variety of textual sources" (ACARA, 2018c, para. 8). The achievement standard of the Australian Curriculum general capabilities literacy for Year 6 is outlined as "students navigate, read and view learning area texts, listen and respond to learning area texts, interpret and analyse learning area texts, and use knowledge of text structures" (ACARA, 2018e).

The O&M unit for Josie's transition to high school (see Appendix F) was informed by the Year 6 receptive mode achievement standard, the literacy organiser for Year 6 English of the Australian Curriculum, and the literacy element of the general capabilities. This is because these standards of achievement were most closely aligned with the knowledge, skills and understanding relevant to Josie's O&M learning. I designed Josie's O&M program to provide her with explicit and systematic opportunities to facilitate her comprehension and text-processing strategies. The lesson plans were specifically structured with a literacy focus pertaining to the process of comprehending text as a picture walk, and included the general capability literacy elements of text, word, grammar, and visual knowledge. In Josie's O&M

texts were combinations of the secondary school's structural, spatial, and sociocultural environments.

For example, in one lesson plan (see Table 6.1 and Appendix G), Josie's learning outcomes for the lesson with the literacy element of "comprehending texts" included identifying the distinctive features of the environment of the secondary school and using visual and auditory cues to identify the differences and purposes of individual areas of the school. Josie's learning outcome for the literacy element of "text, grammar and word knowledge" was to use the consistencies of the secondary school environment to predict the purposes and locations of the structural and spatial features of the school, and employ descriptive clauses, complex sentences, and problem-solving metalanguage when communicating about the secondary school environment. The final learning outcome for the literacy element of "visual knowledge" was for Josie to develop her knowledge of the structure and purposes of rooms and buildings.

The results from Josie's O&M lesson (see Figure 6.1) are now discussed as I sequentially elaborate on the general capability literacy elements. I commence with the literacy element of comprehending text, followed by the elements of text, grammar, word, and visual knowledge. I use examples and dialogue from the lesson with Josie to exemplify the alignment of O&M learning and teaching with the Australian Curriculum General Capability of literacy.

Table 6.1. Lesson Plan: Josie

Lesson Plan: Josie	
Orientating phase	Discussion of culminating task Description of part of school Complex sentences Long noun clauses
Synthesising	Review Near By Considerations Develop a word bank of descriptive words
Evaluating	Include reflection What other information could be used?
Literacy in task	
Comprehending Texts:	What is same/ different? What is the purpose of the text? What are the distinctive features of the text? What is the language of O&M? What are the visual and auditory features?
Text Knowledge	Make predictions Self-regulation Consistency of person-made features to confirm or predict text purpose
Grammar Knowledge	Identify language for problem solving and exploring Use of descriptive clauses
Word Knowledge	Descriptive language of NBC and WESSST
Visual Knowledge	How are the rooms structured and why?

Comprehending text.

The Australian Curriculum general capabilities (ACARA, 2018e, para. 2) defines the literacy element of "comprehending texts" as "students using skills and strategies to access and interpret spoken, written, visual and multimodal texts". For Josie, in O&M, texts were

combinations of the secondary school's structural, spatial, and sociocultural environments. The literacy element of comprehending texts included navigating, reading, and viewing learning area texts; listening and responding to learning area texts; and interpreting and analysing learning area texts. For Josie, the comprehension skills involved in these elements included observing texts with purpose; developing understanding and critical awareness; using sense of hearing, as well as a range of active behaviours, to aid comprehension; and developing a range of reading comprehension strategies. The Australian Curriculum (ACARA, 2018h, para. 6) identifies key comprehension strategies as:

> Activating and using prior knowledge, identifying literal information explicitly stated in the text, making inferences, based on information in the text and their own prior knowledge, predicting likely future events in a text, visualising by creating mental images of elements in a text, summarising and organising information from a text, integrating ideas and information in texts, and critically reflecting on content, structure, language and images used to construct meaning in a text.

While exploring the secondary campus, Josie and I discovered a number of artworks and murals. The murals became Josie's learning area text. I initiated the picture walk by identifying literal information: "*that's a really, really long painting".* I modelled "thinking aloud" and used prior knowledge to make an inference: "*this one looks to me like it's a leaf"* and *"I wonder what all the little circles are".* The teaching practice of thinking aloud was described by Gerde, Goetsch, and Bingham (2016, p. 288) as verbally describing "one's own behaviours or thinking". By thinking aloud, I was making my "thinking process public and externalising" (Gerde et al., 2016, p. 288) the thinking I wished to teach Josie to do internally. According to Gerde et al. (2016), "*think alouds"* often begin with an "I" statement, such as "I think", "I notice" or—as often employed in my interactions with Josie—"I wonder". In this manner, I was facilitating Josie's understanding of how to interpret an environmental text, and how and why others make particular text comprehension decisions.

I continued to identify literal information and make inferences about the text by adding "*maybe this one is a pathway"* and "*I can see that there's fish".* I made further predications and inferences about the text when I offered the following "think aloud": "*I'm wondering if this [represents] the Torres Strait Islands".* Josie followed my "think alouds" as she turned to reference my pointing gestures. She activated her own prior knowledge and made some inferences of her own: "*[There's] an electric eel or a crocodile … and ah [*pointing*] … all the green bit is … Um, all the green is the rainbow, all the white is the polar, all the red is the desert, and all the … orange is the grassland".* After summarising the images from the artwork, Josie reflected on the meaning of the text: "*[Maybe it is] … communities … yeah, maybe all the Torres Strait communities at the school".*

For Josie as a student with VI, developing a "subconscious kind of knowing" (Tuan, 1977, p. 184) of the mural as a place takes time and attention to the visual and auditory cues that define it as a place. As Tuan (1977, p. 183) stated, the "feel" of a place is a "unique blend of sights and sounds" that takes "longer to acquire and is made up of experiences, mostly fleeting and undramatic, repeated day after day". While undertaking a picture walk of the mural, Josie and I experienced a "moment of pause" (Tuan, 1977, p.138) in our explorations of the secondary school. This moment of pause through interpretation and analysis of the mural had the additional benefit of transforming the space surrounding the mural to a place of interest that Josie could later use as a navigational cue for her independent orientation.

Later in the lesson, through another moment of pause, Josie demonstrated that the mural had indeed become a place for her. When returning to the office, Josie was attempting to independently relocate her travel path. She had identified some larger buildings and had verbally communicated to me the features and cues she was using to inform her chosen travel path. However, Josie had identified and was moving in a general direction away from the office when we passed the mural. Josie paused and turned to look briefly at the mural before correctly adjusting her chosen travel path. The picture walks of the mural earlier in the

lesson had facilitated meaning and purpose for Josie in later independent travel through the secondary school.

Shortly after the mural, Josie and I wandered into the secondary school's performing arts centre. I used the same picture walk and comprehending text approach when we found unusual flooring in the performing arts centre and a very intriguing curtain. I identified the literal information by tapping the floor with my foot and pointing to the other floor types: *"hey, there's three different like kinds of floor, there's kind of this floor and there's like another bit … there's even a stage type [floor] there down the back".* However, Josie attended to the solitary and free-standing curtain in the middle of the three segments of parquetry flooring. She identified the distinctive features of the performing arts centre as she explored the free-standing curtain, using visual cues: "*oh, look at that … it's like curtains … [but] to where?".* Josie sought to draw on her prior knowledge of performance centres to make a prediction and inference about the curtain. Prior knowledge comprises intellectual structures and the features and patterns or schemata from previous activities (Argyropoulos, Sideridis, Botsas, & Padeliadu, 2012; Leventhal, Leventhal, & Contrada, 1998). However, in activating her prior knowledge of curtains, Josie inferred that the curtain should lead to somewhere or cover something as she repeatedly moved around the curtain, laughing at the incongruity of a solitary curtain.

I followed the curtain in the opposite direction to Josie and used "think alouds" to assist Josie to activate her prior knowledge: "*I wonder where the curtain goes".* Following my think-aloud prompt, Josie made an inference and a prediction about the curtain: "*oh, so maybe it's like to get off [the stage] or stop the lights".* Josie stopped to look for stage lights behind the curtain area, and then saw me going around the curtain and continued her exploration of the curtain, adding *"I'm going this way".* When she located me, I pointed to the lighting fixtures near my end of the curtain, and, drawing on Josie's previous inference, I added "*maybe for lights because there are these lights here".* Josie then further identified the literal information and made inferences about the nature of the curtain and the flooring as she moved around the curtain from side to side: *"wait … there are these different types of*

flooring, this side [of the curtain] is like carpet … and there is this part, I'm not too sure what that is". Josie looked down at the parquetry flooring and then moved to the opposite side of the curtain, locating the sprung dancing floor and full-length mirrors, and then identified the literal information by pointing to the third type of wooden flooring. She appeared to have some difficulty integrating the information from the text; however, when she verbalised her own "think aloud", she said "*this [floor] is weird".* I joined her and followed her referent gesture and looked at the dance floor and mirrors. I modelled identifying literal information and making a prediction from my prior knowledge: "*maybe this floor is for dance because of all the mirrors".* Josie looked back towards the curtain and appeared to consider the relationship and purpose between each area and item before articulating her inference: *"I know … this one … would be like for performers … or backstage".*

Through exploration of the performing arts centre and through the process of a picture walk, Josie applied reading comprehension strategies by identifying literal information, activating her prior knowledge, and eventually making the inference about the curtain as a backstage area for performers. For Josie, the solitary curtain in the performing arts area would have been an anomaly without prior knowledge of the purpose of curtains or knowledge of stage performances. Josie's evaluation of the accuracy and strength of the inferences surrounding the curtain were supported by her text knowledge of performing arts centres.

Text knowledge.

The Australian Curriculum (ACARA, 2018e) identifies text knowledge as understanding how spoken, written, visual, and multimodal texts are structured to meet the range of purposes in the learning areas. Text knowledge involves students understanding the structure or purpose of texts, and using this knowledge to present information, explain processes and relationships, argue and support points of view, and investigate issues. For Josie, her learning outcome for text knowledge was to predict the purposes and locations of the structural and spatial features of the school. To be successful with this learning goal, Josie

needed to implement skills, such as associating types of texts to particular spaces and places, and identifying differences and similarities between types of texts.

In this next vignette, Josie attempted to comprehend the sociocultural text of the tuckshop, particularly the line-control bars. The tuckshop queuing system is organised by massive line-control bars, and defined by numerous metal bars, with some bars heading into the tuckshop and others bending away from the service counter of the tuckshop. The line-up bars are approximately two to three metres in length, with 10 individual rows of bars. The bars are significantly longer and larger than Josie had experienced at her primary school tuckshop. Josie drew on her prior knowledge of the primary school tuckshop and identified literal information when she exclaimed "*look how big this line-up area is".* Josie continued to walk up and down the line-up area, and then turned around to go in the opposite direction from me. She continued to interpret the structure and organisation of the tuckshop line-up bars as she moved between the arrays of bars: "*I'm going down this way".* For Josie, because of her significant VI, the arrays of bars may have appeared like a maze. When Josie found herself at a dead end, she laughed as she made an inference about the social structure and purpose of the line-up bars, exclaiming: "*I was going down the wrong way".* Josie re-entered the line-up area, and started to move along a different section of the queuing area. In doing so, she unwittingly acknowledged the social awkwardness often faced by students with VI when interpreting unfamiliar social environments (Ishtiaq, Chaudhary, Rana, & Jamil, 2016). Social awkwardness is often experienced by students with VI because they lack access to the same social reinforcers and models as students with sight, such as non-visual cues, gestures and signage (Ivy, Lather, Hatton, & Wehby, 2016).

Josie's concern with finding the right entry and exit areas of the tuckshop highlights the benefits of prior exposure and experiential O&M for students with VI, and reconfirms the importance of the picture walk scenario as part of the comprehension experience. Josie's level of functional vision meant that she missed important visual information outlining the structure of the tuckshop queuing system. Therefore, I provided her with the additional visual information. I accomplished this as I identified the literal information from the signage. As I

tapped the sign, I said, "*I can see this arrow. This arrow says 'this way'",* and then I drew on my own prior knowledge, offered a prediction and role played moving along the line: "*maybe [it is] like at Sizzlers [restaurant], where they put food out and you just come along".* Josie stopped and visually considered the width and breadth of the line-up areas and the direction she was travelling. I imagined Josie deferring to her prior knowledge of tuckshops to form a picture in her mind of how the tuckshop social structure might work. Josie drew on her knowledge of cafeterias from popular teenage movies and television shows. She did this as she tried to assimilate the new information and reconstruct her schematic understanding of tuckshops and cafeteria style spaces. She said, "*yeah, they're like, you know, like … the cafeteria that some big places, like big schools, have where you don't need to bring your lunches. There's just like this long line".* I facilitated her developing awareness of this line of thought by using a "think aloud" to make another prediction: "*like on the American movies".*

Josie pointed to areas of the tuckshop as she articulated her predictions about the purposes of the structural and spatial features of the tuckshop: "*it would be like a tray there and there and there, and food there, and there, [and] pay here".* Josie and I continued for several more minutes discussing the many possible social arrangements for the tuckshop area. Josie suggested different times, menus, serving and paying areas, payment methods, year levels, and days of the week. However, the width of the tuckshop line-up bars continued to confuse her, seemingly not fitting with her understanding of the width required to manage a tray of food in the line. Eventually, Josie posed her own question as a "think aloud", as she mimed being pushed and dropping her tray of food, while trying to manoeuver past me up the line: "*so how do they get out without squishing, you know?"*. She continued to wander up and down the arrays of bars, and appeared to have difficulty comprehending the social conventions and purpose of the tuckshop area.

Comprehension of the information in a text, or of the author's meaning, is the "ultimate purpose in reading" (Tannenbaum, Torgesen, & Wagner, 2009, p. 381). As Hirsch (2003, p. 13) stated, a "big difference between an expert and a novice reader is the ability to take in basic features very fast, thereby leaving the mind free to concentrate on important

features". From this perspective, reading comprehension is analogous to the ultimate purpose of self-efficacious O&M. For instance, comprehension of environmental texts—or, in other words, comprehending the architect's intended meaning—is integral to O&M and subsequently to efficient flow of travel. That is, efficient travellers with VI are more readily able to comprehend and interpret their environment during dynamic travel, thereby leaving their mind free to concentrate on safety concerns, such as pedestrian or vehicular traffic flow.

Grammar knowledge.

Grammar knowledge involves students using different types of words, word groups and sentence structures to elaborate on ideas and represent points of view (ACARA, 2018e). In the Australian Curriculum general capabilities for literacy, the element of grammar knowledge includes students' knowledge of subjective and evaluative language, and use of simple, compound, and complex sentences to elaborate on ideas and events. In this next vignette, Josie and I continued to explore the tuckshop area. Josie demonstrated grammar knowledge as she used complex sentences that included conjunctions to express her opinion and further elaborate on her ideas about the tuckshop text.

As we continued to explore the tuckshop area, I observed another sign to which Josie had not yet visually attended. I provided her with an alternative solution to the social arrangement of the tuckshop queuing system. I used dialogic teaching to model the problem-solving language, tapped the sign and said: "*I wonder why it says only Year 8 and 9 … maybe these signs were put up before Year 7 came to high school?".* The Australian Curriculum identifies problem-solving thinking as a range of critical thinking skills, such as interpreting, analysing, evaluating, explaining, reasoning, comparing, questioning, and inferring. Dialogic teaching involves ongoing talk between teacher and students to elicit critical thinking about texts. Through dialogue, teachers can "elicit students' everyday, 'common sense' perspectives, engage with their developing ideas and help them overcome misunderstandings" (University of Cambridge: Faculty of Education, 2018, para. 1). Dialogic teacher language relies on repeated exploration of a text, and specifically includes a range

of strategic questioning. In a dialogic exchange, the teacher prompts students with questions and responses to facilitate continued dialogue and extension of independent thinking (Doyle & Bramwell, 2006).

Josie considered my ideas as she continued to interpret the meaning implied by the architectural design of the tuckshop. She demonstrated comprehension strategies and problem-solving thinking as she considered alternatives to the line-up area and offered her own "think aloud" using complex, descriptive sentences and clauses: *"I think maybe [this row is] for grade Year 11, 12s … because it has the thing [EFTPOS machine] and that is why it would be pretty much for the seniors … and this would be like the Grades 7, 8, 9, 10s and then [there] 11 and 12, and anyone can go in here".* Josie continued as she pointed to the different lines: "*so … maybe it [the lines and bars] doesn't matter anymore or maybe this is just 7, 8, 9 … I don't know about those ones … I don't know where they [the students] were lining up before Year 7s came to this school?".* Josie's musings on the tuckshop remained an investigation for another time. Unable to fully comprehend the tuckshop at this stage, Josie switched her attention to another building outline—the secondary school library. The library provided an opportunity for me to attend to Josie's developing word knowledge about the school environment.

Word knowledge.

Word knowledge involves students understanding the increasingly specialised vocabulary and spelling needed to compose and comprehend learning area texts (ACARA, 2018e). Within the O&M context for Josie's lesson, this specifically related to knowledge of topic words and spelling strategies when decoding environmental print. Environmental print is the "text that children see, create, and interact with in their surroundings" (Gerde et al., 2016, p. 284). The importance of environmental print for learning experiences and reading comprehension has been well documented (Cronin, Farrell, & Delaney, 1999; Gerde et al., 2016; Hirsch, 2003), with empirical research supporting the view that students' "knowledge of environmental print" facilitates word reading (Cronin et al., 1999, p. 271). According to Cronin et al. (1999), learning environmental print directly facilitates word reading; thus,

experiences with environmental print influence a student's ability to learn specific words. Environmental print is considered a useful tool in supporting students' writing and literacy development.

The promotion of literacy, reading, and writing knowledge requires students to have multiple opportunities to engage with environmental print. However, some students with VI may not have ready access to the repeated social and cultural print encounters required to acquire specific word development and comprehension strategies. Unlike students who are sighted and able to participate in incidental learning experiences without the direct involvement of their parents or teachers, students with VI may need adults to facilitate their interactions with the environment (Koenig & Farrenkopf, 1997).

Josie decided to aid her memory of the different environments of the secondary school by recording identified information through photographs and brief notes on her iPad. She indicated that photographs would allow her to have repeated viewings and experiences with the environments and to share her experiences with her family. However, after several years of schooling, and implementation in Australia of American mandates regarding ECC targeted teaching of assistive technology for students with VI (Texas School for the Blind and Visually Impaired [TSBVI], 2018), Josie appeared to have had limited opportunities to become proficient in the iPad as her preferred learning mode. She had not yet, for example, explored such accessibility adjustments, as the print size, background, and colouring required for her to independently access the iPad. Therefore, Josie's capability for input and output about the environment was compromised.

As Josie attempted to write notes about the library on her iPad, an opportunity arose to facilitate her word knowledge. Josie had difficulty spelling the word "library". She slowly articulated each letter as she typed *"um … l … i… b … ry … Is that how you spell library?".* Although there were many areas in the library where the word "library" was listed, we had not yet completed a picture walk of the library, and Josie's limited functional distance vision negated her capability to independently attend to the environmental print. Josie had not yet acknowledged the environmental print as a possible solution to her word knowledge. I drew

her attention to the environmental print by pointing to the different signage around the library. Josie looked around. Attending to environmental print was an arduous task for Josie because her functional distance vision allowed her to locate only one letter at a time. She looked at the one letter and returned to her iPad, typing this one letter. Fortunately, the word she sought was not a long word. She continued to type as she slowly vocalised each letter: *"L".* She looked back to the environmental print and signage: "*Lib".* She looked back again and emphasised the R and the A as she typed: "*RA".* Finally, she looked again to the environmental print for the remaining letters: "*ry".* Then, having decoded the word, she reread the whole word again: *"library".*

Visual knowledge.

The visual knowledge element of the Australian Curriculum General Capability literacy continuum (ACARA, 2011, para. 12) involves students understanding how visual information contributes to the meanings created in learning area texts. Visual knowledge is also referred to as visual literacy (Victorian Education and Training [VET], 2018) and includes interpretation of both moving and still images and graphic representations. According to Victorian Education and Training (2018, para. 6), the "context, or environment in which a text is responded to, or created, is an important consideration in the first stages of examining an image or visual text". In activating the visual knowledge component of reading comprehension, students are encouraged to examine how the "image or text is organised" and how "visual choices can prioritise some meanings and background others" (VET, 2018, para. 8). In the O&M context, visual knowledge includes the way visual elements of the environment create social, cultural, and spatial meaning.

As Josie and I explored the high school setting, we came across a small (two-metre-long) unique chain-link fence separating an area of the quadrangle—which Josie referred to as the "*grassy quadrangle"*—from a monument. The fence was unique in that there was no other chain-link fence on the school grounds. The rear of the monument was open to the large "*grassy quadrangle"* area, with the fence framing only one side. The monument had been erected for the recently deceased and previous long-term principal of the school. Tuan

(1977, p. 6) claimed that attitudes to space and the different ways people attach meaning to and organise space and place are affected by sociocultural behaviour and values, and space becomes a place as people "get to know it better and endow it with value". As a result of the association of the monument to the past school principle, I deemed the monument and surrounding space an important sociocultural feature and place of the school community.

The prominent position of the monument in the middle of the school determined that the space had been endowed with value by the school community. Students without VI have the potential, through using their visual perceptual skills, to incidentally perceive, sense, and conceive the monument for the value bestowed upon it by the school. Functional vision (see Chapter 1) pertains to a person's visual skills and abilities across different dynamic real-world environments (Hall-Lueck, 2004). Given that the monument and fence were positioned in the middle of the quadrangle, they were outside Josie's functional visual perception domains. A small, poorly contrasted printed plaque on the monument was also outside the range of Josie's functional vision. As a result of Josie's significant VI and lack of opportunities to incidentally perceive the area, she required her visual attention to be specifically directed to this sociocultural place.

In directing Josie's attention to the monument and the chain-link fence, I was able to provide opportunities for Josie to consider the purpose, structure, and sociocultural space of the monument. I stopped beside the fence, faced the monument, and rattled the fence. I encouraged Josie to consider the structure and placement of the monument and chain-link fence as I said, *"this is the only path that I've seen that has these chains on it. Every other path has had like the bar"*. Josie had been looking back towards the library, yet joined me and looked only at the portion of fence directly in front of us. Without further visual exploration and in consideration of her functional vision, Josie assumed that the fence followed the entire pathway. She initially perceived the fence as a barrier and management of pedestrian traffic flow: *"I think it [the fence] is … so people don't run on there … or, you know, like … no cutting across the lawn".* I drew Josie's attention to the location of the chain-link fence in the middle of the pathway intersection and "*grassy quadrangle"*, intentionally

prioritising and foregrounding the monument. I pointed to the monument and the other pathways angling away from our pathway as I said, "*maybe it [the chain link fence] is to separate it [the memorial] from those other pathways".*

Josie looked closely at the area and noticed the outline of the monument beyond the fence. She activated her prior knowledge as she moved closer to and looked purposefully at the memorial: *"maybe someone died there".* She then investigated how the design of the space had been created to draw the viewer's attention directly to the plaque on the monument. Josie was quiet for a period. She continued to view the monument and then considered a recent news item as she articulated her understanding of this place: "*well, someone did hang them self at another school … and they put a thing like this at that school".* I supported Josie in her reasoning, and read out the plaque to her and added, "*I can see that this plaque mentions a teacher".* Josie looked around at the position of the monument in the centre of the quadrangle and once again considered the size of the quadrangle and locality of the other school buildings. She considered the social, cultural and spatial elements of the monument as she added, "*maybe they have like assembly or something here … to, you know, remember him or something".*

By drawing Josie's attention to the monument and fence, I was able to facilitate Josie to employ her visual knowledge and subsequently consider the purpose and function of the monument. In this manner, Josie was able to attribute her own "experiential perspective" (Tuan, 1977, p. 8) to transform her comprehension of the fenced space as a pedestrian traffic control—when she said "*so people don't run on there"*—into a place when she later said "*maybe they have like assembly or something here"*.

In this vignette, I have presented the results for identified data analysis themes that indicated an alignment of Josie's O&M with the Australian Curriculum General Capability of literacy. The vignette reminded me of the many interconnected layers between O&M learning and teaching and literacy. Literacy is defined as an interdependent relationship between a "plural set of social practices that encompass a vast range of strategies used to construct meaning within a given socio-cultural context" (Norris, 2014, p. 62). For Josie,

O&M connected the traditional academic literacies of reading and writing to the broader multi-literacies of visual, auditory, spatial and behavioural texts (New London Group, 1996). Thus, through O&M learning and teaching, Josie engaged with multiple literate ways of working and viewing the world.

Students with VI often demonstrate delays in language and concept development because of delays in environmental exploration and object manipulation (Erickson et al., 2007). This issue arises because vision provides invaluable information for the "construction of the concrete experiences with objects that are needed as a foundation for language learning" (Vinter, Fernandes, Orlandi, & Morgan, 2013, p. 856). In addition, Bigelow (2003, p. 261) argued that "spatial and event information that can be gleaned by sighted children in a single glance must be sequentially explored, synthesised, and reconstructed by blind children". Therefore, concrete experiences and targeted language exchanges, where the teacher is recognised as a communication partner and facilitator, are regularly recognised as evidence-based literacy teaching practices for students with VI (Mathijs, Vervloed, Loijens, & Waller, 2014). O&M learning and teaching for Josie involved exploration, concrete experiences, construction of knowledge, and determining the deep meaning of words and language to connect multiple literate ways of knowing and doing in regard to the visual world.

Numeracy

Numeracy is defined in the Australian Curriculum (ACARA, 2018d, para. 1) as "the knowledge, skills, behaviours and dispositions that students need to use mathematics in a wide range of situations". Numeracy involves students recognising and understanding the role of mathematics in the world, and attaining purposeful use of mathematical knowledge and skills. The Australian Curriculum general capabilities numeracy continuum is organised into six elements: (i) estimating and calculating with whole numbers, (ii) recognising and using patterns, (iii) fractions, (iv) spatial reasoning, (v) statistical information and (vi) measurement. Each of these numeracy elements is underpinned further by a number of elaborations. The elaborations from the numeracy capability were applied to the thematic

analysis of the O&M lessons. According to ACARA (2018c), students apply numeracy skills as they solve everyday problems in a wide range of authentic contexts using efficient mental, written, and digital strategies. During the following O&M learning and teaching episodes, there was a transference of numeracy skills to authentic contexts beyond the classroom.

Using measurement, spatial reasoning, and estimation and calculation with whole numbers.

In the Australian Curriculum general capabilities numeracy continuum (ACARA, 2018d), the element of measurement is defined as students learning about measurement of length, area, volume, capacity, time, and mass. The elaborations for the element of measurement are noted as students estimating, measuring, comparing, and calculating metric units when solving problems in authentic contexts, as well as identifying and sequencing dates and events using a calendar, and using timetables for a variety of purposes. The Australian Curriculum general capabilities numeracy element of estimating and calculating with whole numbers is identified as students using numbers for different purposes, and using numbers in context. The Australian Curriculum general capabilities numeracy element of spatial reasoning is identified as the description of key features in the environment, and using directional language to identify and describe routes and locations (ACARA, 2018d).

Spatial reasoning for students with VI involves understanding the distal relationship between “objects to self and objects to objects” (Penrod & Petrosko, 2003, p. 155). As identified by Wiener et al. (2010, p. 750), orientation is the “knowledge of one’s distance and direction relative to things observed or remembered in the surroundings and keeping track of these spatial relationships as they change during locomotion”. Thus, the ability to accurately estimate degrees of turns and distance walked are important for students with VI because, without vision, the tracking of spatial relations is guided largely by internal cues, such as proprioceptive and kinaesthetic feedback, or by distal cues, such as auditory perception. Therefore, spatial reasoning is fundamental to good O&M instruction (Long & Giudice, 1997) because spatial reasoning aids in the maintenance of “environmental flow”—that is, the capability of students with VI to monitor changes in the distance and direction of things in

their surroundings as they walk. According to Penrod and Petrosko (2003), maintaining environmental flow is the epitome of affective navigation and independent O&M.

I use vignettes from the O&M lessons with Annie, Kelly, and Josie to highlight the alignment of O&M learning and teaching with the numeracy elements of measurement, estimating and calculating using whole numbers, and spatial reasoning. Each of these numeracy elements has a number of underlying elaborations. I present the data on the elaborations of the general capability of numeracy in three sections. First, in an excerpt from an O&M lesson with Annie—the Year 1 student with VI—I identify the data relating to the numeracy elaborations describing position and movement through making direct and indirect comparisons, describing the features of familiar environments, and discussing each elaboration in the context of the O&M lesson. Second, I use a series of excerpts from the lessons with Annie, Kelly, and Josie as illustrations of data that are aligned with the numeracy themes, using numbers in context, identifying situations where money is used, and operating with clocks and timetables. Finally, I present vignettes from the lessons with Kelly and Josie to highlight the data related to interpreting maps and diagrams.

Describing position and movement, making direct and indirect comparisons, and describing features of familiar environments.

As an illustration of the alignment of O&M learning and teaching with the general capability of numeracy, I present an excerpt from an O&M lesson with Annie, who estimated and calculated measurement and whole numbers, and used spatial reasoning as she described and attended to auditory information. The focus of Annie's O&M program was established through consultation with Annie's class teachers and support team, who regularly commented on difficulties that Annie experienced with auditory attention. Although Annie was continuing to develop strategies to attend to environmental noise for learning and to facilitate her navigation and safety, she continued to experience difficulties with attention during class discussions and when background noise was present. As such, Annie's O&M lessons were targeted to facilitate her capabilities to describe the position and location of auditory texts.

Annie's considerably reduced functional vision means that she is unable to visually access the sources of distal sounds. As such, Annie frequently becomes distracted or distressed by sounds that she cannot readily identify. This is most evident during O&M lessons, when Annie often puts her hand over her ears, hunches and grimaces in response to loud noises, instead of seeking out plausible explanations for environmental sounds. Therefore, developing Annie's attention to a variety of auditory texts, including distal and near auditory texts, was a prominent part of her O&M program. Annie's O&M program involved facilitation and scaffolding for attention to, gathering, articulating, and integrating a range of visual and auditory information from familiar environments.

Learning to accurately use auditory information is an important O&M skill for all students with VI (Anthony, 1993; Barclay, 2011) because auditory perception for students with VI is not automatic or supersonic, as implied by stereotypical representations of people with VI (Balan, Moldoveanu, Moldoveanu, & Dascalu, 2014; Strechay, 2017). Auditory perception is considered a key component for people with VI in analysing risks, developing strategies and making decisions for example decisions regarding road crossings (Sauerburger, 2005). The ECC (TSBVI, 2018) specifically includes perception and awareness of auditory information as part of the sensory efficiency and compensatory skills mandated in the additional curriculum for students with VI. For Annie, auditory perception—or the awareness of, attention to, localisation of, discrimination of, and memory of auditory information—is an essential component in developing her environmental awareness.

The O&M numeracy-related goals for Annie were taken from the appropriate year level elaborations of the Australian Curriculum for mathematics (ACARA, 2018a), general capability of numeracy (ACARA, 2018d) and curriculum strand of Year 1 geography (ACARA, 2018g). The auditory goals for Annie's program were identified as describing position and movement, making direct and indirect comparisons, describing features of familiar environments (ACARA, 2018a), and listening to the ideas of others. The vignette commences five minutes into the O&M lesson, as Annie and I were seated in the undercover walkway of her primary school, attending to environmental auditory texts.

We used an attention-directing tool to describe and attend to auditory information. First established by Brannock and Golding (2000), who appropriated De Bono's (1967) lateral thinking ideas, the attention-directing tool facilitates the identification and description of auditory information using three parameters: distance, direction, and volume. These parameters are abbreviated to the initialism "DDV" for ease of metalanguage during an O&M lesson exploration. In Brannock and Golding's (2000) attention-direction tool, informal measurement is used to identify the distance, while standard directional language is used to describe the direction of the auditory text, and a volume scale (where 1 is low and 10 is high) is used to further describe and identify the auditory text. According to Mendive, Bornstein, and Sebastián (2013) and Burgh (2014), attention-directing tools regulate and focus attention in more comprehensive and thorough ways, drawing students' attention to aspects of situations that they might otherwise have missed, before decisions are made. Attention-directing tools "make thinking more deliberate, more structured, more organised and more effective" (The Edward De Bono Foundation, 2014, para. 6).

Annie was new to the DDV initialism and to this style of attention directing and articulation of auditory text. Thus, I provided guided practice and transferred and applied the attention-directing DDV tool to real-world contexts in Annie's school. Guided practice (Houston Independent School District Curriculum and Development, 2018) refers to interactive instruction in which, after new information is introduced, the teacher and student collaboratively complete the task as a model. Through guided practice, the teacher gradually releases more and more responsibility of the thinking to the students (DoE publishing as DETE,2014). I explained the DDV initialism to Annie, and modelled the process of attending to auditory information using Brannock and Golding's (2000) DDV attention-directing tool as follows: "*DDV is the distance of the sound … how far away it is. The direction of the sound … left, [or] right [or] in front of you … and volume of the sound [is] how loud the sound is".* Annie's directional language and spatial reasoning appeared limited to the generic directional "there" and to pointing. She pointed in front and behind of where we were seated

and stated *"and … behind you, so here or here".* She continued to point to different locations around the undercover area, adding *"or here, or here, or here".*

I continued with the guided practice as I modelled the measurement, estimation and location of the metalanguage (the words one uses to describe language choices): "*I am going to practice [using DDV] on voices at the moment … I can hear … a lady's voice and I think she is more than my car length away and I think she was in front of me … and I think that it might have been a volume five because volume 10 is really loud".* Annie demonstrated joint attention as she attempted to follow my gestures and pointing references. Joint attention refers to the set of skills that students use to coordinate their attention with that of another person in relation to a mutually interesting environmental text, and is associated with cognitive, language and social competencies (Mendive et al., 2013).

After the initial modelling session in the undercover area, Annie and I moved to the library and sat on a couch, and I continued with the guided practice of attention to auditory texts. I continued to model understanding and using numbers in context. I introduced the sounds in the library to Annie by providing a productive question: "*what sort of sounds do you think we might hear in the library?".* I offered the "think aloud": *"I wonder if we will hear loud number 10 sounds or soft number one sounds".* Productive questions are generally considered higher cognitive questions that ask students to "mentally manipulate bits of information" (Cotton, 1988, p. 4). Productive questions include questions that focus attention, compare, pose problems or provide reasons (Martens, 1999), and, according to Elstgeest (1985 as cited in, Dengler, 2009, p. 6), help "stimulate productive activity". In addition, productive questioning is aligned to dialogic teaching practices and forms a major component of collaborative teaching pedagogies (Edwards-Groves et al., 2014).

Annie displayed awareness of whole numbers when she replied, "*number one, because the library is the quietest place in the whole school".* Annie quickly adopted the think-aloud statements applied during our literacy O&M learning and teaching. She stated, "*I can hear a teacher talking to the kids".* She turned around to seek the source of the teacher's voice, which was outside her functional vision range. I maintained, followed, and

reinforced (Mendive et al., 2013) Annie's attention to the teacher's voice with the attention-directing DDV acronym: "*Distance … How far [away]?".* I continued with a "think aloud" and an estimation of nonmetric measurement: "*I think [the teacher's voice] is more than my car length away … more than your mummy's car length away".* Annie responded with a metric measurement estimation: "*well … I think my mum's car is 29 metres away from us".*

I continued to verbally prompt the DDV acronym in an attempt to facilitate Annie's use of directional language: "*okay, so a long way away. What about direction? Is [the teacher] on our right or left? What do you think?".* Annie pointed to her left. I continued verbally prompting the DDV acronym, this time facilitating Annie's use of numbers in context: "*Volume … What volume do you think that teacher's voice is? Do you think [it is] a loud number 10, soft number one or just in between [like] number five?".* Annie demonstrated her developing awareness of numbers and numerical value as she attempted to describe the auditory text. She whispered, *"I think, a number seven … No, 11".* I supported her whole-number understanding by elaborating and contextualising her thinking and offering another productive question: "*Eleven? So you think [the teacher's voice] is pretty loud?".*

Later in the lesson, Annie and I continued to identify auditory texts using Brannock and Golding's (2000) DDV attention-directing tool, as Annie aurally attended to a banging sound and attempted an estimate using metric measurement. In this excerpt, Annie and I added comparison and contrast of DDV to our repertoire. I used a dialogic question to assist Annie to begin her description and to maintain her attention to the banging noise: "*so tell me about that sound".* Annie applied her understanding of whole numbers by answering, "*I think it's a number 10".* I offered the comparison, "*you think it's a number 10, really loud. Is it as loud as our teacher's voice or softer?".* However, Annie appeared to be continuing to develop her understanding of whole numbers as she whispered "*softer"*, and then laughed and said, *"a number 13"*, and finally decided on a numerical value somewhere in between: "*no, 11".*

I asked Annie *"how far away from here is it [that sound]?"*. Annie stepped out the distance to where she believed the banging sound was occurring and called out "*16 metres*

away". I continued to model the use of numbers and estimation of distance and direction with "think alouds": "*I think [16 metres] is longer than my car away. What about direction? Was it in front of us, behind us, to the side?".* Annie illustrated her directional language as she pointed to the front and said "*in front of us".* Towards the latter part of the lesson, Annie independently applied her numeracy learning to some quieter sounds: "*I can hear that picture floating … it's a number two … 40 metres away, a long way … longer than my arm".*

Using numbers in context, identifying situations where money is used, and operating with clocks and timetables.

The elements of number, measurement, and spatial reasoning are three interrelated areas of the Australian Curriculum General Capability of numeracy (ACARA, 2018a), where O&M enables the expression and experience of mathematical relationships. However, there are many applications where O&M learning and teaching facilitates numeracy understandings for students with VI, and where numeracy understanding facilitates O&M learning (Smith, 2006). As Healy, Hassan, and Fernandes (2011) stated, mathematical objects and relationships may be experienced and expressed in numerous ways.

The thematic analysis of the O&M lessons identified further alignment with elaborations from the Australian Curriculum General Capability of numeracy. The additional identified elaboration themes were understanding and using numbers in context, identifying situations where money is used, and operating with clocks and timetables (ACARA, 2018a). To illustrate the alignment of O&M learning and teaching with these elaborations, I present a number of small vignettes from various O&M lessons with Annie, Josie and Kelly (the Year 3 student with VI). I begin with the alignment of O&M to understanding and using numbers in context, as I continue with Annie's lesson as she endeavours to locate a classroom using an outdoor numbering system. Next, I return to Josie's O&M lesson as she describes locations around the tuckshop using analogue clock directions, and investigates the secondary school timetable. I then introduce Kelly, as she attempts to identify money use and budgeting.

Understand and use numbers in context.

The numeracy element of estimating and calculating with whole numbers includes the elaboration of understanding and using numbers in context. This elaboration is outlined in the Australian Curriculum General Capability Numeracy (ACARA, 2018d) as counting or in reference to more or less the number of items, and to outdoor and indoor numbering systems. For students with VI, using a "numbering system to locate floors and/or rooms poses challenges in finding unfamiliar places beyond those involved in physically negotiating the space" (National Centre for Special Education Research, 2007, para. 8).

In this vignette, Annie noticed a class lunch basket in the undercover area as we were returning to her classroom following our O&M lesson. After locating the print on the basket to identify the owner of the basket as Class 3C, and problem solving what we should do with the basket, Annie decided that we should return the basket to the identified classroom. Given that Annie was in the Year 1 buildings, this required us to locate the unfamiliar buildings of the Year 3 classrooms, and to specifically locate the Year 3C classroom. After locating the Year 3 classrooms, we were then required to explore the outdoor numbering system of the school.

Finding and locating unfamiliar classroom numbers is difficult for Annie because of her functional VI. I modelled problem solving by providing the think aloud: *"what else could tell us this is the Year 3 building?".* However, Annie appeared to already possess an understanding of numbering systems, as she looked towards the entrances of the classrooms, although she did not appear to be aware of where the numbers on the buildings may be located, as she answered: "*they [the doors] have numbers what tell us which one it is … there will be a word what says 3C".* Annie looked at the numbers on the side of the building, reading out the building number *"5T".* I further modelled to Annie, both verbally and by moving to a position near a sign on a door, the approximate position of classroom signage, saying, *"This one says 3A".*

Annie appeared to have an understanding of the graduated level of outdoor numbering systems. She demonstrated this when she immediately moved past the next

classroom door (presumably 3B) to the third door, which was likely and logically class 3C. However, the difficulty of understanding unfamiliar numbering systems for students with VI was highlighted when a student with sight exited from the doorway and asked us if we needed assistance. It was bemusing to both Annie and me when he pointed and explained that Class 3C was located in the building to our left and two doors down. However, Annie assimilated her prior knowledge of the classroom numbering systems by exclaiming, "*Oh … that [is the] classroom near the computer lab".* She maintained an element of spatial orientation by continuing, "*I remember … when we went to the computer lab … there was a 3D [on the door]".* Spatial orientation refers to the ability of students with VI to establish and maintain an awareness of their position in space relative to a specific location and destination (Ross & Blasch, 2000).

Operate with clocks and timetables.

Spatial abilities and referencing are important everyday O&M skills because they facilitate navigation in familiar or unfamiliar environments, locating objects and interaction with those objects, and the memory of position in space (ACARA, 2018a). There are two commonly understood frames of reference used to represent spatial information: egocentric and allocentric. According to Colombo et al. (2017), the egocentric frame includes spatial information about the location of the individual in the environment, and leads to body-centred referencing, such as analogue clock face representations. Alternatively, the allocentric frame involves spatial information about the position of objects relative to each other and relative to world-based coordinates, such as cardinal and Euclidean referencing. In O&M learning and teaching, egocentric and allocentric spatial orientation includes systematic numbering systems, compass directions, grid patterns, building shapes, and the use of the clock face (Long & Giudice, 1997; Rieser, Guth, & Hill, 1986).

Distal landmarks and referencing occur in both the allocentric and egocentric modes of spatial reference. When students with VI use distal spatial referencing, they are determining their place or where they are in an environment, based on a diverse set of idiothetic (e.g., motor, proprioceptive, vestibular) and allothetic (e.g., vision, tactile, olfaction)

cues (Sanchez, Thompson, & Clark, 2016). In other words, for students with VI, distal spatial referencing establishes an orientation in space relative to their external environment (Knierim & Rao, 2003). The analogue clock face is routinely taught to students with VI to facilitate their egocentric, allocentric, and distal spatial orientation and referencing (Wiener et al., 2010).

In this excerpt from the lesson with Josie, we are seated in a very noisy undercover eating area of the secondary school. Josie is building her awareness of her spatial orientation as she attempts to identify distal sounds, visual cues, and landmarks using the analogue clock to describe the location or direction of an object, building or environmental text. On the analogue clock face, the student with VI is always placed at the six o'clock position, with the description of environmental features provided as an egocentric reference from the perspective of the student with VI. Josie is familiar with the O&M language of analogue clock face positioning. Josie looked around and described and pointed in the direction of the surrounding environmental features: "*um … it's 10 … like 10 … 10 o'clock".* She continued: "*ten o'clock from me … and then … oh, yeah, at 12 o'clock … there's the tuckshop … and then, oh … I think about three o'clock … there's a … loud PE [physical education] area thing".*

There are a variety of ways that students with VI can reference features of the environment to remain oriented and spatially aware (Long & Giudice, 1997), with clock face distal referencing one of these. Graphic signs, road markings and printed transport information (such as timetables) are also part of the many cues available to aid independent, sequential and fluid travel (Harper & Green, 2000). Timetables are an invaluable aid to sequential travel in secondary schools for students with VI. Formal school routines, such as timetables, are recognised as one of the major anxiety-causing factors for students transitioning from primary to secondary school (West, Sweeting, & Young, 2008). For this reason, Evangelou et al. (2008) argued that successful secondary school transition programs include familiarising students with school routines and school organisation

systems. Therefore, Josie's O&M transition program included an introduction to the school routines, systems, and timetables.

Josie and I used a secondary school timetable to plan, navigate and explore during her O&M lessons. Josie noticed the first-year building and assumed this was where her classes the following year would be located: "*I thought the first-year centre would be where I have maths".* Josie was already starting to understand the value of timetables when, after some exploration of the first-year centre, she noticed only one classroom in the building and referred back to the timetable—"*I'll look at the timetable"*—to clarify where her maths class may be located: "*maybe maths is somewhere else".*

Identify situations where money is used.

O&M learning and teaching provides multiple opportunities to investigate geometry, logic, problem solving, and basic algebra, as well as managing and purchasing money (Smith, 2006). Money management skills form part of the daily living skills component of the ECC, and are subsequently required to be systematically and sequentially taught to students with VI (Ajuwon, 2007). Identifying situations in which money may be used is also a prominent feature of O&M programs. For students with VI, developing confidence with retail transactions adds to confidence and skill in social interactions. The Australian Curriculum general capabilities numeracy element of "identifying situations where money is used" includes elaborations, such as recognising prices, reading menus and retail transactions (ACARA, 2018d).

In this vignette, I introduce Kelly, the Year 3 student with VI. Kelly's O&M program targeted developing her attention and understanding of environmental signage. Kelly and I had previously spent several lessons investigating and exploring signs inside the school campus. As part of an O&M formative assessment to determine goals for the upcoming school year, Kelly and I also explored signs around the school, in the broader community, and in shopping centres. Kelly appeared to have a general understanding of money, budgeting, and the retail environment when she identified several pictures advertising sales and pricing. She pointed to the clearance sign and stated:

You would see them only in fashion shops … So [the prices are] how much they could [be] cleared … or how much the things are, and … you would see them at only at fashion shops or … or any shop … if it was a clearance.

Kelly then identified a picture of a grocery store, recognised pricing per kilogram, and revealed her budgeting experiences. She pointed at the picture and explained to me the purpose of the price tag: "*Like it says how much … like if I was to buy an apple … if that sign wasn't there, I wouldn't know how much the apple would be … so … wait".* Kelly leaned in close to the picture to read the price: *"two dollars … two … 60 kilograms".* Kelly appeared to have some difficulty articulating and understanding the price per kilogram because she turned to look questioningly at me.

Attending to students' attempts to problem solve, recognising the next step in students' learning and responding to students' numeracy attempts is an important mathematics teaching skill (Jacobs, Lamb, & Philipp, 2010; Kapperman, Heinze, & Stricken, 2000). Recognising Kelly's apprehension regarding price per kilogram, I modelled reading the sign price: "*wow, so $2.60 per kilogram of apples".* I then sought her understanding of the value of money: "*I wonder if that's a good price to pay for apples?".* I attempted to gauge her experience with retail purchasing: "*I wonder how much one apple would cost me?".* Kelly was convinced that $2.60 per kilogram was a good price for apples. She answered "*yes, definitely"*, though she offered no other thoughts on the cost of one apple at this stage.

The next picture displayed a public telephone booth. Kelly further demonstrated her awareness of situations requiring money use when she said, "*if you need to ring somebody and you forgot your [mobile] phone … you can do it for a little bit of money".*

Interpreting maps and diagrams.

Map interpretation and construction comprise the manipulation or production of a representation of the geographical visual environment involving specific spatial abilities known as cognitive mapping and spatial reasoning (Lloyd & Bunch, 2005). The reading of formal maps or mud maps - an Australian bush colloquialism denoting a simplified diagram or sketch of a route, containing features drawn in the mud (Mud Map TM, 2019) - is seen as

a fundamental aspect of navigation strategies for people with VI. Map construction is often used as an assessment of students' spatial awareness, and as a means of portraying and exploring the location of environmental texts (Wiener et al., 2010). Therefore, map reading, map construction and cognitive mapping are regular practices in O&M lessons (Wiener et al., 2010). Interpreting and constructing geographical maps is likewise included as part of the ECC and Australian Curriculum mathematics, geography, and general capabilities numeracy strands (ACARA, 2018a; 2018d, 2018g). Interpreting maps and diagrams is specifically identified as an element within the spatial reasoning strand of the Australian Curriculum General Capability of numeracy (ACARA, 2018a).

Spatial reasoning, or the organisation of space, is dependent on sight (Tuan, 1977). However, Riecke (2003) argued that visual cues alone are insufficient for good orientation because vision, as indicated previously (see Chapter 1), is a unifier of the senses (Dodd & Conn, 2000). Therefore, for students with VI, spatial reasoning necessarily "comprises the development of prior knowledge regarding spatial layout and self-location" (Cobo, Guerrón, Martín, del Pozo, & Serrano, 2017, p. 294). Extending and developing a-prior knowledge of space for the student with VI is the role of the O&M specialist. In a recent study of spatial mapping, Schmidt, Tinti, Fantino, Mammarella, and Cornoldi (2012) determined that higher mobility skills for people with VI involved mastery of spatial reasoning strategies. Spatial reasoning or spatial thinking encompasses three underlying cognitive skills, all of which are represented as a continuum of spatial thinking across the school year levels in the Australian Curriculum General Capability of numeracy (ACARA, 2018a). According to Liben (2008, p. 22), the three interrelated areas of spatial reasoning are:

> Knowing about the concepts of space (such as units of measurement, coordinate systems, dimensions of space); and second knowing how to produce and interrelate spatial representations (for example, depicting the same objects from different viewpoints and understanding how these are related); and third, having skill in spatial reasoning for example, calculating the

shortest distance as the crow flies and as a route distance in a rectangular street grid.

To identify themes in the numeracy element of spatial reasoning, I examined the Australian Curriculum year levels for each of the three students. I then identified areas in which spatial reasoning had been applied to each of the O&M lessons. For Annie in Year 1, spatial reasoning involved demonstrating awareness of the position of self to objects in everyday contexts, and following directions to understand common position words and movements (ACARA, 2018d). For Kelly in Year 3, spatial reasoning included giving and following directions on maps and diagrams of familiar locations (ACARA, 2018d). For Josie, Year 6 spatial reasoning included describing routes and locations, using grid reference systems and directional language (ACARA, 2018d). I referred to the first two elements of spatial reasoning—knowledge of the concepts of space, and knowledge of spatial relations—in the previous vignettes with Annie and Josie. For example, Annie was developing concepts of space and spatial relations when she estimated distances and locations of distal sounds, as was Josie when she described her environment with analogue clock directions. In the following vignettes with Annie, Kelly, and Josie, I address the data relating to spatial reasoning in more detail. I use maps constructed by Annie and Kelly and maps used by Josie to illustrate the alignment of O&M learning and teaching with spatial reasoning.

Mapping the position of self to objects.

Annie's O&M program goals (see section on literacy) were identified as describing position and movement and identifying features of an environment. In contrast, the majority of Annie's O&M lessons focused on auditory texts, and a number of lessons specifically involved developing her visual efficiency skills in identifying and describing environmental features. Visual efficiency is one component of the ECC and is described as the "the extent to which one uses their available vision" (Cowan, 2018). Visual efficiency is aided by cues from the environment, such as colour, distance, illumination, contrast, and location. For students with VI, their visual efficiency is determined by their functional vision (see Chapter

1), in other words their individual cognitive attention or processing of visual environmental cues. For Annie, developing visual efficiency involved exploration of signage within the school and the construction of maps to highlight and reference the location of the signs.

In this vignette, I asked Annie to depict the location of the signs from our stationary position at the Year 1 classroom (see Figure 6.1). I drew the Year 1 building as a first point of reference. In this mud map, we see the Year 1 classroom at the top of the map where Annie and I were located when she drew the map. We see four other buildings positioned in relation to the Year 1 area. Annie labelled these four buildings or environments as follows: the playground, Chinese garden, toilet block, and shaded area. A cross on each of these buildings identified the position of signage that Annie had located on previous lessons.

Annie verbally reported the location of each sign as she drew crosses to reference the location of the environmental signs on the map. Annie represented the location of the signs from different viewpoints and was able to depict an understanding of how the signs related to each other and to her own position within the school campus. In this way, Annie linked two representations, a sign to her location, and the school environment to its graphic representation (see Figure 6.1). Liben (2008) argued that linking two representations in this way assists individuals' knowledge of where they are located on the map, and acts as an important precursor for wayfinding and implementing a travel route.

Wayfinding according to Caddeo, Fornara, Nenci, and Piroddi (2006, p. 168) includes cognitive processing, encoding, and the retrieval of information about the environment. The ability to orient oneself in a new environment and move efficiently and independently through that environment is dependent on cognitive complexity, which specifically includes visual processing (Caddeo et al. (2006). Therefore, people with VI necessarily use alternative cues for wayfinding. In a study of wayfinding for people with VI, Caddeo et al. (2006) compared the ability of people with VI to learn a travel route with either the use of a map or only verbal cues. Caddeo et al. (2006) found that the participants with VI who had access to maps walked more quickly and demonstrated a more accurate level of

confidence in retrieving spatial information than did those participants with VI who learnt the route only by direct experience with verbal descriptions.

Figure 6.1. Annie's Map of the Location of Signage within the School.

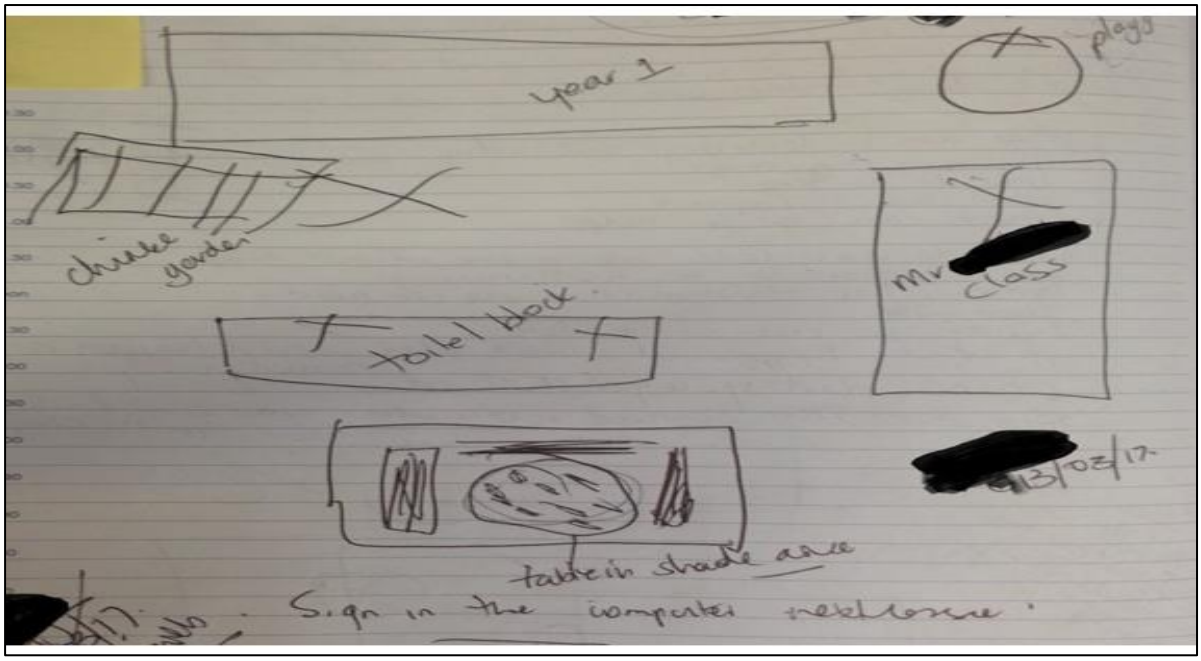


Figure 6.1. In this mud map we see the year one classroom at the top of the map where Annie and I were located when she drew the map. We see four other buildings positioned in relation to the year one area. Annie labelled these four buildings, the playground, Chinese garden, toilet block, and shaded area. A cross on each of these buildings identifies the position of signage that Annie had located on previous lessons.

Giving and following directions on maps and diagrams of familiar locations.

The Australian Curriculum expectations for map construction and map interpretation parallel the developmental progression of spatial reasoning identified by Piaget (1999) —to include both geographical knowledge and numeracy understandings. For instance, mapping skills within the Australian Curriculum geography (ACARA, 2018g) for Year 3 includes several areas relating to spatial knowledge and understanding, such as locating and naming significant places on a map, describing characteristics of places (such as landforms and humanmade structures) and using mapping conventions (titles, legends, labels, grids, and compass points). The Year 3 numeracy element of spatial reasoning (ACARA, 2018d) includes spatial reasoning concepts, such as giving or following directions on maps and

diagrams of familiar locations, describing routes, and using simple scales and directional language.

Kelly constructed and interpreted maps similarly to Annie in her early O&M years. However, given that Kelly was now in Year 3, I held different expectations of her spatial reasoning and level of skills in map production and manipulation. Thus, Kelly's mapping skills required a higher level of cognitive processing. The development of cognitive processes in spatial reasoning (such as symbolic representation and Euclidean and projective spatial concepts) are critical for student growth in mapping skills (Liben, 2008). Kelly and I had undertaken a number of O&M lessons in her familiar school environment. At the commencement of this year, Kelly's O&M program involved reassessment of her current O&M skills, with a particular focus on her understanding of the broader environment outside the school gate. Over several lessons, we explored the environment, roadways, vehicular and pedestrian traffic, and environmental signage surrounding the school campus. After completing the exploration of the roadways outside the school, I asked Kelly to provide two maps as part of her formative O&M assessment. First, I requested Kelly draw a map of her school and surrounding roadways (see Figure 6.2). Second, as an assessment of her broader understanding of her local area, I requested Kelly complete a map of her travel route from home to school (see Figure 6.3).

The first map (see Figure 6.2) displays a large rectangular shape depicting the school campus, labelled by Kelly with the name of her school. The school campus is surrounded by two larger rectangles depicting the pathways and fences that border the main school campus. The bottom of the map displays five structures representing the humanmade pedestrian crossing structures. The two sets of smaller rectangular shapes depict striped crossing poles, the two sets of concentric rectangular shapes depict the concrete traffic safe barriers, and, in the middle of these, the horizontal bars indicate the pedestrian crossing.

Figure 6.2. Kelly's Map of the Front of the School

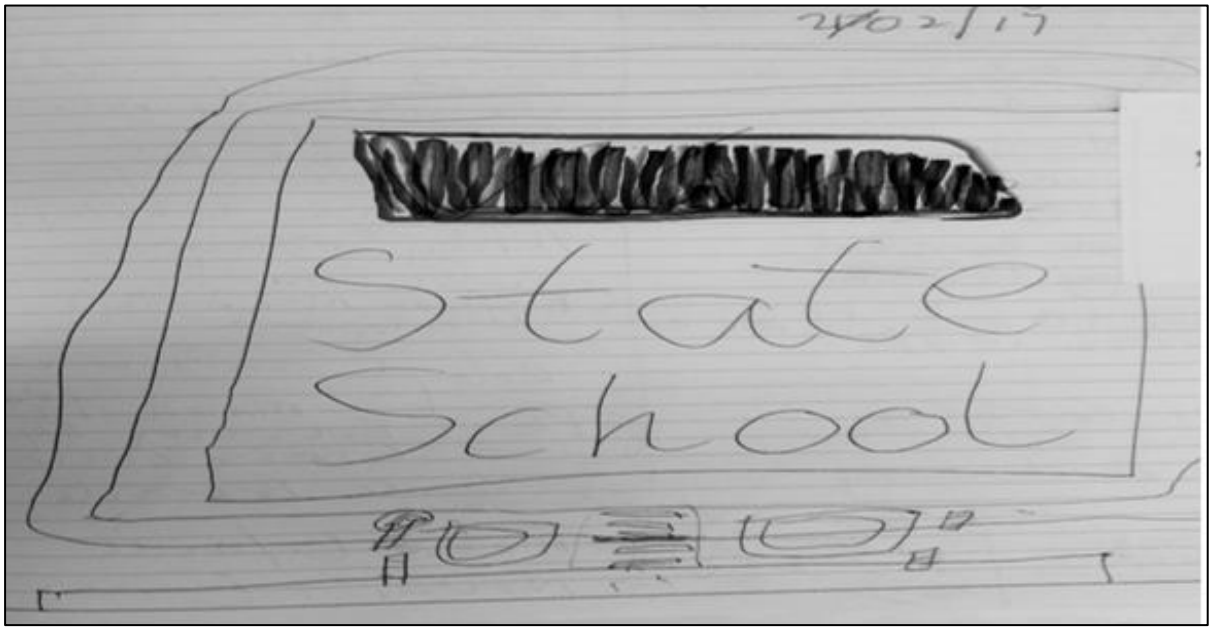


Figure 6.2. Kelly's map depicting the school campus and surrounding roadways. The large rectangular shape depicts the school campus, labelled state school. The school campus is surrounded by two larger rectangles depicting the pathways and fences that border the main school campus. At the bottom of the map, five structures represent the humanmade pedestrian crossing area at the front of the school. The two sets of smaller rectangular shapes depict striped crossing poles, the two sets of concentric rectangular shapes depict the concrete traffic islands. The horizontal bars in the middle of the smaller structures indicate the pedestrian crossing.

Kelly's second map (see Figure 6.3) displays a bird's eye view of her local area. The school is represented by a small rectangle in the top left corner. Opposite the school is the high school, and next to the school is the car park. At the bottom of the map is the area labelled "*Dad's unit"* (Kelly's father's unit complex), the "*store"* and "*city waters"*. Joining these structures are a number of lines showing the footpath and roadways that Kelly travels when she walks to school from her dad's unit. Kelly used a rectangle topped with a triangle to depict houses along the travel route.

Figure 6.3. Kelly's Map of her Travel Route from Home to School

Figure 6.3. In this map we see a bird's eye view of Kelly's local area. The school is represented by a small rectangle in the top left hand corner. Opposite the school is the high school, and next to the school is the car park. At the bottom of the map we see a series of rectangles that Kelly has labelled Dad's unit, the store, and city waters. Joining these structures are a number of lines depicting the footpath and road ways that Kelly travels when she walks to school from her dad's unit. The rectangle topped with a triangle depict houses along the travel route.

Kelly assigned meaning to symbols in her depiction of the pedestrian crossing and traffic control structures in front of the school. She located and named significant places on the map when she labelled the school, and attended to the characteristics of places, such as the humanmade pedestrian crossing, roadway, and traffic structures. Kelly also demonstrated her knowledge of the dimensions of space in attributing the much larger area to the school site. In addition, in the second map, Kelly labelled and represented scale and proportion, and demonstrated alternate viewing angles and direction. In both maps, Kelly used a bird's eye view to depict the environment from different viewpoints.

An important feature of locomotion and wayfinding is the ability to perceive an environment from a high elevation, as if seen by a bird in flight (Golledge, 1999). Golledge (1999) argued that a bird's eye view provides discrete spatial cues that aid the internal feedback (cognitive processes) and external references (visual flow) used to apprehend and traverse the environment. The Australian Curriculum (ACARA, 2018f) specifically references the representations of the environment that show the location of features through a bird's eye view. Maps can be used as tools for navigation, as well as identifiers of location points, as in the previous vignettes. In addition, interpreting maps and developing spatial reasoning skills facilitates problem solving and critical thinking (Kapperman et al., 2000). According to ACARA (2018a), proficiency in problem solving frames all mathematical concepts. In the next vignette, Josie used a map as a navigation strategy and to conceptualise and problem solve in the unfamiliar secondary school campus space.

Describing routes and locations.

Josie's O&M transition program to the secondary campus included a selection of mapping goals. The elaborations of the Australian Curriculum Year 6 numeracy (ACARA, 2018a) element on spatial reasoning include describing routes and locations and using grid reference systems and directional language. For Josie, these elaborations translated to drawing and interpreting formal maps, asking questions to seek direction, and receiving and giving directions.

In this vignette, Josie and I were attempting to determine which buildings surrounded the tuckshop area. Although Josie was able to visually identify building outlines, her functional vision limited her ability to identify building numbers and outdoor numbering systems. To assist her ability to gain a bird's eye view of the school layout, I modelled the use of the school map to identify our location on the map, and to plan and implement a travel route. I pointed in the direction of the building closest to us as we stood in the tuckshop area, and identified the type and location of the outdoor alphanumeric numbering system used in the school: *"[this building] has got an 'MU' … written above the drink tap".* I provided a "think aloud" as I unfolded and consulted the map: "*I think [the building] is music".* Josie followed

my point and, although she could not see the numbering system, she considered and problem solved possible options for the building when she said, "*or it's maths".*

I investigated the map legend to determine which building might be represented by the symbol "MU". I first identified our location by referencing buildings we had already recognised near our location, and then determined the building purpose, pointing to the map and then back to each building location as I spoke: "*there's the quadrangle … there's the MPS [multipurpose shelter] … [MU] … it is music".* As we moved beyond the tuckshop, we located other numeric symbols on other buildings and used the map legend to find the representation of each symbol, and the map to locate the buildings. When we came to a building labelled "MT", Josie first considered it would represent "*technology"* then "*maths and technology"*, before she scanned the map legend and identified the building as "*maths".* When we came to a number of buildings with "MT" on them, Josie showed an appreciation of the vast spatial environment of the secondary school when she consulted the map, stating, "*there's lots of maths classrooms".* When we found a building labelled "MTM" that was not on the map legend, Josie assigned her own meaning: "*MTM … maths [and] technology in the morning".* After visually locating the MTM building, Josie referred to the map once again to assist her problem solving and navigation in returning to the tuckshop area. By looking and pointing at the map and then pointing and cross-referencing with her own functional vision, Josie said, "*this is the playground. I remember that … I also found that building … and there's the hill … and I believe that the drama thing is over there … oh, yeah, so we go this way".*

Solid mathematical understandings are considered a vital component in enhancing educational and occupational opportunities for all students (Kapperman et al., 2000). According to Kapperman et al. (2000), students must have numerous and varied interactions with their environment to develop mathematical concepts, such as number sense, classification, seriation, measurement, and position in space. For Liben (2008, p. 28), connecting mathematics to students' surrounding reality is "critical for daily life". The O&M learning and teaching experiences identified in the vignettes provided numerous and varied

interactions for Josie, Kelly, and Annie to “develop the conceptual framework for understanding mathematics” (Smith, 2006, p. 161). One crucial aspect of mathematical understandings (ACARA, 2017) is problem solving. For students with VI, establishing and maintaining an efficient “flow of travel” (Harper & Green, 2000, p. 4) involves solving problems, thinking creatively, and making decisions (Long & Giudice, 1997). For example, in the previous vignettes, Annie used problem solving to represent the location of environmental signage in relation to her own spatial location, while Kelly used problem solving to represent and plan her travel route to school. Josie problem solved her return travel path to the tuckshop using the map. Through using the map, Josie highlighted her capability to problem solve and think creatively to maintain a flow of travel in the secondary school environment.

In the next section, I explore Josie’s problem solving and critical thinking in more depth. Having presented the data from the thematic analysis that is related to the Australian Curriculum general capabilities elements of literacy and numeracy, I now present the data that are related to the element of critical and creative thinking.

Critical and Creative Thinking

Critical and creative thinking (CCT) involves students thinking broadly and deeply in all learning areas at school and in their lives beyond school (ACARA, 2018b). In thinking creatively, students use skills, behaviours, and dispositions, such as reason, logic, resourcefulness, imagination, and innovation (ACARA, 2018b). In the Australian Curriculum, CCT (ACARA, 2018c) is outlined as students generating and evaluating knowledge, clarifying concepts and ideas, seeking possibilities, considering alternatives, and solving problems. CCT is important for students with VI because, as Wolffe (2000, p. 700) argued, students with VI need to be able to “think creatively, solve problems and make decisions without relying on others”.

The Australian Curriculum general capabilities CCT (ACARA, 2018c) element is organised around four dimensions: inquiring, generating ideas, reflecting on thinking, and analysing and evaluating ideas. Each of these four elements has a set of elaborations to

assist teachers to make connections to key thinking skills in core curriculum subjects. Examples of CCT skills are listed in the Australian Curriculum as interpreting, analysing, evaluating, explaining, sequencing, reasoning, comparing, questioning, inferring, hypothesising, appraising, testing and generalising (ACARA, 2018b). In addition, ACARA (2018b) suggested that CCT is closely related to metacognition, concept formation, and the enhancement of personal dispositions, such as persistence, reasonableness, flexibility, and open mindedness.

Non-visual travel in a visually cued environment necessitates overt thinking processes (Long & Giudice, 1997). Environmental print and features are unconsciously acknowledged and internalised by visual travellers for navigation and wayfinding because of the unifying and anticipatory nature of the visual sensory system (Hayashi, Blake, & Nasuto, 2016). According to Loeliger and Stockman (2014), students with VI similarly activate cognitive problem solving when they employ navigating and wayfinding strategies during travel, yet with the additional difficulties of interpreting and coordinating distal information from various sensory inputs.

Thinking creatively with Josie.

Josie's program goals for her transition to secondary school were underpinned by CCT skills. In the O&M transition unit plan (see Appendix F), Year 6 higher-order thinking skills—such as inquiring, synthesising, and evaluating (ACARA, 2018c)—were identified as critical to Josie's overall learning. According to ACARA (2018b), by the end of Year 6, students are expected to be able to identify and clarify relevant information and prioritise ideas, and assess the adequacy of these ideas to justify a claim, conclusion, or outcome. Four specific areas of CCT were identified by Josie's school support team as important for the development of her thinking skills: identifying and clarifying ideas and information, considering alternatives, transferring knowledge into new contexts, and applying logic and reasoning. For Josie, this translates to identifying information in the environment relevant for interpretation of the social, cultural and spatial places of the secondary school, and using evidence from her prior knowledge and multiple sensory inputs to justify conclusions made

about a space. Elaborations for these learning outcomes also include posing questions, seeking assistance, problem solving errors in navigation, and problem solving "what if" situations when the flow of travel is interrupted.

I begin this vignette with Josie and I seated in the covered eating area of the secondary school during lunchtime. Through observation and map reading (see previous section), we had already determined which building was the toilet block. We were now trying to avoid possible social errors by attempting to determine the male and female toilets from a distance. This required Josie to gather information about the pedestrian traffic and the visual cues around the toilet block, and to justify her interpretation of this information as evidence in identifying the female and male toilets. I modelled the CCT skill by posing the question using a think aloud and asked: "*How are we going to work out which [toilets] are female and which [toilets] are male because we can't read the signs from here?".* Josie watched the students entering and exiting the toilet block area and identified the movement of students as useful information: "*you can see the people going in … so that [toilet] is the boys and that [toilet] is the girls".* I prompted Josie to consider and clarify the information she had gathered to facilitate her confidence in confirming her assessment. I posed a productive question: "*what is another way we can tell the difference between the boys and girls toilets?".* Josie looked around for additional visual cues and began to attend to environmental print. She pointed to signs around the toilet block, gathered relevant information and justified her conclusion about the location of the toilets:

> *The girls [toilet] is more closer … oh and the girls, the girls have like a sign out the front there … like a red or white [sign], and the boys have like a dark bit … and there is that door that is closer to the girls toilet … and the boys toilet is closest to the corner.*

Later, Josie and I entered the foyer of the science building, when Josie suddenly stopped walking. The new and very different science classroom required Josie to reconstruct her prior classroom schemata and interrupted her flow of travel. She appeared confused. I noticed her hesitation and posed the productive question: "*I can see you're looking a bit lost*

… Tell me what's wrong". Josie gathered additional information to clarify, confirm, and justify her understanding of her location. She looked around and began to articulate environmental features that she previously understood as defining a classroom: "*this isn't a classroom or anything. There's no carpet … we thought this was science".* Josie attempted to visually rectify the incongruity of the new science room with her understandings of a classroom. She continued to identify and clarify information and ideas, consider alternatives, transfer her previous knowledge of classrooms to the new situation, and apply logic and reasoning to understand her location before attempting to navigate her travel path and continue her flow of travel. I modelled to Josie how to gather this information by drawing her attention to other visual features of the area and by providing alternative solutions for her consideration:

> *Maybe this is just like a covered area … it looks like they have got some old benches and stuff here … maybe there is another door that we've got to go through [to get to the science classroom] … maybe this is just like a foyer.*

We located two doors that appeared to exit the foyer area into classrooms. I prompted Josie to gather relevant information about each of the doors, posing the question: "*I wonder what the differences are between the doors?".* Josie identified information as she pointed to each door, saying, "*[This one] has posters … This one doesn't. This has a big poster there … and a big poster there".* She continued, *"this [door handle] is on the left side and this [door handle] is on the right side … and [there is a] painting on the side of the window".*

However, Josie had not yet clarified to herself that these classrooms were indeed science rooms, so she considered an alternative: "*I wonder if there is another way into the science building".* She began to search for another doorway, and exited the science building to search for an alternative entrance. As Josie located her position on the map and visually recognised that the large multipurpose building was in her direct visual line of travel, she was required to think creatively to estimate a new travel path and adjust her flow of travel. She suggested, "*we could go around".* Josie proposed a new travel path, moving around the building structure in an attempt to locate another entrance.

The Australian Curriculum general capabilities are strongly linked in the literature with the cognitive processing skills required for self-determination, self-regulation and self-efficacy (Bandura, 1977; Leventhal et al., 1998; Seabald, 2013) . According to Eisenman, Pell, Poudel, and Pleet-Odle (2015), being self-determined involves understanding one's abilities and limitations, empowerment, self-realisation, decision making, initiative, and making choices. In the same manner, constructs of self-regulation and self-efficacy include motivation, beliefs, and perceptions of personal competence (Anjum, 2006; Klassen & Usher, 2015; Tella, 2011). Being self-efficacious encompasses correcting misconceptions and identifying current knowledge. For the student with VI, self-efficacious O&M involves maintaining flow of travel and a belief in themselves as an information gatherer who is readily able to comprehend and interpret their sociocultural environment during dynamic travel (see Chapters 1 and 2).

In the previous vignette, Josie employed these cognitive skills and demonstrated self-efficacious O&M as she attempted to locate her position in the school ("*we thought this was science"*), interpreted the nuances of the science room ("*there's no carpet"*) and relocated her travel path to maintain a flow of travel ("*I wonder if there is another way into the science building"*). I examine in more detail the alignment of self-determination, self-regulation and self-efficacy in O&M learning and teaching with the Australian Curriculum general capabilities of personal and social capabilities in Chapter 8.

Personal and Social Capability

The Australian Curriculum general capabilities personal and social capabilities (PSC) are identified by ACARA (2018i) as students learning to understand themselves and others, and managing their relationships. In evolving PSC, students develop a "sense of self-worth, self-awareness, and personal identify that enables them to manage their emotional, mental, spiritual and physical well-being, with a sense of hope and optimism about their lives and the future" (MCEETYA, 2008, p. 9). In particular, through the development of PSC, students learn about their own emotions, values, strengths and capacities; are able to manage their

own emotions and behaviours (emotional regulation); and are able to understand others (empathy) (ACARA, 2018i).

The PSC component of the Australian Curriculum has four interrelated elements: self-awareness, self-management, social awareness and social management (ACARA, 2018i). Each of these elements contains elaborations detailing expected student knowledge, skills and dispositions, and identifying how each PSC element is related to core learning areas of the Australian Curriculum. Two of these elaborations (solving interpersonal problems, and recognising qualities and achievements) were repeatedly identified in the thematic analysis stage of alignment of O&M learning and teaching with the Australian Curriculum PSC. Thus, I present a vignette highlighting the alignment of Annie's O&M learning and teaching with solving interpersonal problems. I then use a small vignette to highlight how Josie's O&M learning and teaching facilitates recognition of her personal qualities and achievements.

"Will you please play with me?" (Annie, Year 1 student)

Annie's quotation directly reflects the overarching themes identified in the thematic analysis (see Chapter 4) of the O&M lessons using the PSC elaborations (ACARA, 2018i). Annie's quotation "*will you please play with me"* also highlights the difficulties experienced by students with VI in developing self-esteem and self-advocacy (see Chapter 2), and in solving interpersonal problems (Sacks & Wolffe, 2005). Students with VI may not incidentally develop social skills (Sacks & Wolffe, 2005) because vision plays an important role in the "acquisition and refinement of skills that form the basis for positive social interactions" (Palmer et al., 2012, p. 74). Sacks and Wolffe (2005) argued that students with VI need social skills to be explicitly communicated in structured ways.

Annie constantly articulated that she had "*no one to play with"*, that she "*couldn't find her friends"* or that the teacher was "*to play with her"*. Therefore, a part of Annie's overall program was a social skills program (see Appendix H) that addressed Annie's difficulties in locating peers with whom to play. School staff reported that Annie spent an inordinate amount of time during playtimes either at the sick bay or shadowing playground duty staff.

Although Annie's playtime behaviours may have been considered a precursor for her developing social competence, as Bowen (2010, p. 241) argued, social skills for students with VI are required to be "taught rather than caught".

Students with VI often record feelings of social isolation (Harris, Brown, & Harnett, 2015), exclusion, bullying and lowered teacher and peer expectations because of their VI (de Schipper, 2017). Moreover, social attitudes—such as preconceived ideas about VI (see Chapter 5)—can affect the way students with VI perceive themselves (Ajuwon, Sarraj, Griffin-Shirley, Lechtenberger, & Zhou, 2015; Palmer et al., 2012). Thus, students with VI may experience lower levels of self-esteem than their sighted peers (Papadopoulos, Montgomery, & Chronopoulou, 2013). The level of self-esteem and self-awareness attained by students with VI subsequently affects their social interactions, social competence, and social inclusion. As such, Bowen (2010, p. 241) argued that, for students with VI, "inclusion and high self-esteem are closely connected". Thus, learning and using appropriate social skills were important for Annie's continued social inclusion, both in school and outside the school setting.

The goals for Annie's O&M social program were determined using the elaborations of the Year 1 Australian Curriculum General Capabilities PSC continuum, which is developmentally framed. These elaborations included solving interpersonal problems through joining a social group for play, taking turns in play, and maintaining social conversation with peers (ACARA, 2018i). Annie's social skills lessons were divided into four phases of scaffolded play development (see Table.6.2 and Appendix)—orientation, synthesis, evaluation, and feedback (Edwards-Groves et al. 2014)—with each phase addressing the specific PSC skill of joining in and interrupting a social group. For example, the orientation phase involved Annie planning for play, and the synthesis phase involved Annie's exploration of which games could be played and where. In the evaluation phase, I led discussion with Annie about which games were played, who they were played with and what could be played next break. In the feedback phase of the lesson, I provided feedback regarding the future use of appropriate words, phrases, questions, and intonation to facilitate Annie in sustaining play with her peers.

Table 6.2. Lesson Plan for Annie for Social Skill Development

Lesson Plan: Annie	
Orientating phase	What and where did you play questions How to plan for play Review NBC- signs and sounds
Synthesising	Asking what games are you going to play? (when return)
Evaluating	What did you play and where? Who did you play with? Who can you play with next break?
Feedback	Use of intonation Choice of words
Literacy in task	
Comprehending Texts:	Who is in the group? What is the group doing? Looking for information? What is the game? How is the game played?
Text Knowledge	How to interact? How to ask for support and to join ?
Grammar Knowledge	Word choice Sentence structure Intonation Pragmatics
Word Knowledge	Words for setting up and interacting
Visual Knowledge	What games could be played in the space?

For each lesson, Annie was provided with a learning statement (see Figure 6.4) in the introductory phase of the lesson, which explicitly stated the personal and social learning

goal for that lesson. The learning goal was co-constructed with Annie at the commencement of each lesson, and drawn from her overall social learning goals. In the vignette that follows, Annie's social learning goal was to join in with peer play where appropriate, and was represented in this lesson as Annie's capacity to locate friends in the playground. Annie's success criteria for this lesson was denoted by Annie identifying possible friends and possible locations in the school where those friends could be found, such as the computer room or oval, and asking the friends what they were playing and if they wanted to play with Annie.

Figure 6.4. Personal and Social Capability Learning Statement for O&M Lesson

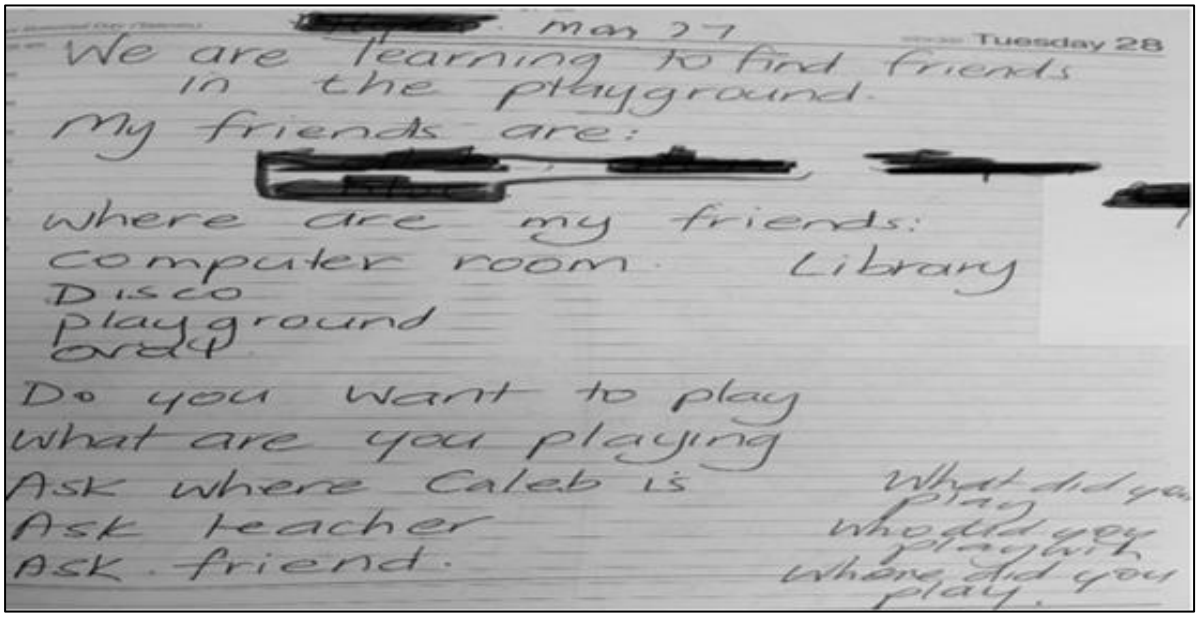


Figure 6.4. O&M lesson learning statement identifying the personal and social intended learning for the lesson.

I begin this vignette in the orientation phase of the lesson, as I demonstrated to Annie the process of initiating and terminating social interaction. I asked Annie who she was "going to play with" to facilitate conscious social planning. Annie chose a friend from her class: "*Eddie Spaghetti".* Annie pointed to a boy exiting her classroom, and highlighted the enormity of solving interpersonal play problems when she added, *"I don't know his name. I just call him Eddie Spaghetti".* Annie started to move towards Eddie Spaghetti when he moved beyond her functional vision range (more than one metre). She immediately stopped walking, and, without attempting to think about possible locations where she might find her chosen friend,

and without directing her voice to either a specific person or direction, she called out: "*where have you gone?".* I modelled a verbal "think aloud" to facilitate Annie to locate her playmate, Eddie Spaghetti. I said, *"Hey, Annie, I can see that Eddie Spaghetti has stopped at the gate. Let's go and find out why*". I created a preferred play situation and modelled positive ways for Annie to initiate a conversation with her peers when I said, *"Hey, Eddie Spaghetti, I wonder if we can play outside the playground?".*

Annie then solved an interpersonal problem by nominating the play area and game: "*let's go to the library … we are playing ghosts".* Annie demonstrated leadership skills and took responsibility for the play situation with Eddie Spaghetti by taking him by the arm and moving off to the library. Fortunately for Annie, Eddie Spaghetti was happy to join her in this instance. However, at the conclusion of the playtime, when returning to class, Annie walked away from Eddie Spaghetti without acknowledging him, and was not visually able to recognise his nonverbal gestures. I offered Annie direct feedback to support her future verbal interactions with her peers: "*Hey, Annie, it would be nice if you told Eddie Spaghetti that you were leaving and where you were going. He was waiting [to go back to class with you]".*

Recognising qualities and achievements.

The Australian Curriculum General Capabilities PSC contains the organiser of self-awareness. Self-awareness is defined by ACARA (2018i) as students developing an awareness of their own emotional states, needs, and perspectives; having a realistic sense of their own abilities; understanding themselves as learners; and recognising their personal qualities and achievements. According to ACARA (2018i), students develop an understanding of their personal strengths through experiencing and evaluating a range of personal and social behaviours, becoming effective communicators, solving problems, exploring and displaying curiosity, and taking initiative. For Year 6 students, such as Josie, recognising personal qualities and achievements involves describing the influence of personal qualities and strengths on their learning outcomes (ACARA, 2018i). The opportunity to explore and to better understand Josie's self-perception arose during O&M lessons with Josie.

Josie and I were discussing ways to identify and retain information about the new school environment. Josie displayed initiative and recognised her personal achievements in note taking and retaining information, and her personal capabilities in requiring printed information to be slightly bigger when she said, "*I can maybe get a big note of this [map and notes about the buildings] and … copy this onto a printer and then I can … have a book".* Josie further identified her personal strengths and qualities when she added, "*I could even help some people".* Josie's self-esteem was heightened as she perceived herself to be competent and confident in the new school environment, and able to assist her peers. As argued by Klingenberg, Fosse, and Augestad (2012), students who perceive themselves as competent in domains in which they aspire to excel will have positive self-esteem. Thus, for Josie, recognising her achievements and qualities was important in developing and sustaining her self-esteem, peer expectations, and social inclusion in the new high school environment.

The previous vignettes from the O&M learning and teaching lessons with Josie, Kelly, and Annie highlight analysis of the data from within the perspective of Bronfenbrenner and Morris's (2006) microsystem, and illustrate the results associated with the research focus area of understanding the alignment of O&M with the curriculum. In presenting these results, I used quotations, dialogue and planning documents to highlight the alignment of O&M learning and teaching with the Australian Curriculum general capabilities of literacy, numeracy, CCT, and PSC. I now revisit the data and use my diary entries to highlight disconfirming evidence for the alignment of O&M with the Australian Curriculum.

Disconfirming Evidence for Alignment of O&M with the Australian Curriculum

According to Booth et al. (2013, p. 126), qualitative research involves the selection of deviant or non-typical cases that serve as "examples that do not fit patterns". Thus, in an attempt to identify discrepant and refutational results (Booth et al., 2013) regarding the alignment of O&M learning and teaching with the Australian Curriculum, I returned to my journal and diary entries. According to Hubbs and Brand (2010, p. 63), reflective journals introduce "new and different ways of thinking" through information, and facilitate movement beyond basic

understanding towards integration of knowledge. For me, understanding the culture of O&M learning and teaching was expanded and enhanced through the intellectual crafting (Mills, 1961) of my journal entries.

A series of journal entries throughout the data collection period (Semester 1, 2017) alerted me to several difficulties aligning O&M with the curriculum. Although there was always intent for curriculum alignment, I noted in my diary that the necessary explicit, systematic execution of O&M inquiry rarely occurred outside of individual specialised O&M lessons. This was consistent across all O&M programs for all students with VI. Difficulties aligning O&M with the curriculum increased with the level of formal O&M required, the age of the student, the available staffing and the type of O&M program. For example, I provide two brief vignettes in which I identified disconfirming evidence for the alignment of O&M learning and teaching with the Australian Curriculum.

O&M learning and teaching requires consistent practice, support, and reinforcement from the student's team, such as parents and teachers (Douglas et al., 2009). Reginald (panel member) summarised this:

> *The classroom teacher and the O&M [specialist] need to have a shared understanding and an opportunity to plan and have regular contact. In this way, each individual can understand each other's program and can support intended goals of the other*.

However, there was no consistent collaboration between me and classroom teachers for any of the students in this study, particularly for Kelly, where I was not privy to any curriculum discussions or planning. Following a lesson with Kelly, I noted the difficulties aligning O&M with the Australian Curriculum when there was little time provided for the teacher and me to discuss and share the student's learning. I attempted to connect with Kelly's class teacher to identify Kelly's in-class learning; however, the class teacher was never released from class, and was always busy during break times and after school. Thus, I had limited discussion with the class teacher, and was unable to assure the alignment of O&M to Kelly's in-class learning.

On 10 March 2017, I considered my difficulties in trying to find an O&M program that "*the school could take ownership of"* and that would match Kelly's O&M needs. I reflected that "*without knowledge of what unit she [Kelly] is up to with maths [and] science [and] English, it is hard to make those links explicit for her [Kelly]".* I recognised that addressing these difficulties was not possible with only *"a half hour"* conversation with the class teacher. I added that I didn't *"know how to make the links [to the curriculum] without the [class] teacher support"*. I concluded my journal entry by adding, "*If I knew the curriculum unit … I could make the links … otherwise it [O&M] is disconnected".* I had similar difficulties continually aligning social skill development for Annie, and noted in my diary, *"[Annie's] social program [is] hard to include in [the] curriculum".* I asked myself, "*Where does the explicit and continued [O&M] exposure fit? Where does the social development for [Annie] fit?"*

Kochen (2016) asserts that while many of the ECC skills and knowledge blend seamlessly into regular curricula—such as inquiry thinking, social skills, teamwork, and assistive technology—some skills, such as O&M, are "necessarily learnt separately" for students with VI (p. 321). Further, as identified by Douglas et al. (2009, p. 4) and exemplified throughout all the lessons with Annie, Kelly, and Josie, O&M learning and teaching is most "likely to require one-to-one work" outside of the classroom environment. This adds to the difficulties around the availability of physical resources in schools to support O&M programs. I identified difficulties regarding the lack of available physical school resources to support Annie's O&M program in her semester report. On 13 March 2017, I penned:

> *An O&M program requires support from school staff for the skills to be scaffolded with adult modelled and verbal supports on a regular and consistent basis to the student. Support staff from the school were not readily available for consistent scaffolding, skill development and capacity building to occur in the [O&M] program.*

O&M learning and teaching inherently involves a broad range of knowledge and skills across a vast range of environmental, spatial, cultural, and social spaces, with a diverse and heterogeneous population of students. Some of these O&M programs necessarily involve the more formal and technical skills, such as long-cane use, sighted guides, road crossings, public transportation and complex commercial travel (Kircher-Herring, 2015). In addition, as Kircher-Herring (2015, p. 397) stated, there are many occasions in which O&M services need to be "considered outside of the immediate school building", and this may include "residential neighbourhoods, rural areas, business or commercial districts". Similarly, Nimmo (2008, p. 12) argued that "orientation and mobility training should not be relegated only to the school environment". Nimmo (2008, p. 12) added that students with VI need to be able to "safely and independently travel out in the community", equitable to their sighted peers. However, these formal and technical O&M programs may not be so easily interwoven with regular curricula. In my diary, I pondered the different types of O&M programs and the difficulty aligning some O&M programs with the core curriculum. I wrote:

> *There are many different types of O&M programs and different expectations around an [O&M] programs … [It is] more difficult to get alignment with [the] curriculum the more senior the student, the more formal the O&M, and the more community access required in the program*.

The senior school years pose additional problems for the integration of O&M. In the senior years, the general curriculum becomes "more extensive" and "differences between students are more recognised" (Khochen, 2016, p. 320). As contended by Kuhl et al. (2014, p. 3), the "emphasis on academic content and the necessary pace of teaching within the secondary classroom" impede inclusive practices. Following an O&M lesson with a Year 10 student with VI (not a participant in my research), and conversations with my colleagues regarding alignment of O&M with the curriculum at the senior level, I contemplated the difficulties aligning O&M with the senior curriculum. On 15 March 2017, I reflected that the flexible idea of a text was "*more applicable to the lower primary school years"*, and added

that the Australian Curriculum language and literacy continuum for senior secondary students was "*specific to written literacy and vocabulary choices"*, with the text focus "*more print"* oriented. I likewise noted that connecting O&M to senior mathematics is "*even harder"* and that I "*wasn't able to make a direct connection in [senior] mathematics at all"*.

In the same journal entry, I acknowledged the use of the Australian Curriculum General Capabilities PSC and CCT as "*applicable to O&M across all [senior] subjects"*, but that it was "*much harder to visualise what this [O&M learning and teaching] looks like in a senior classroom".* I also considered the application of O&M with health and physical education (HPE) and noted that senior HPE is more applicable to the development of student self-advocacy and self-determination. However, I added that HPE for the lower primary years was a *"little easier"* and had "*useful descriptions for body [and] spatial [awareness]"* in terms of movement and the "*long cane".*

Reflective Discussion: Alignment of O&M Learning and Teaching with the Australian Curriculum

The focus of this chapter was the alignment of O&M learning and teaching with the core Australian Curriculum. The Australian Curriculum (ACARA, 2017c) comprises three dimensions: learning areas, general capabilities and cross-curriculum priorities (see Chapter 2). Disciplinary knowledge is found in eight learning areas, such as English and mathematics. Alongside these eight learning areas are the general capabilities, such as literacy, numeracy, CCT, and PSC, and the cross-curriculum priorities. The general capabilities are designed to add depth and richness to student learning through development of student "knowledge, skills, behaviours and dispositions" (ACARA, 2017b, para, 1). According to ACARA (2017c, p. 1), "students develop capability when they apply knowledge and skills confidently, effectively and appropriately in complex and changing circumstances, in their learning at school and in their lives outside school".

English is one of the eight core learning areas of the Australian Curriculum. The English curriculum is divided into three main strands: literacy, literature and language (ACARA, 2018c). The themes identified in my research focused mainly on the alignment of

O&M learning and teaching with the capabilities of students with VI within the literacy strand. Literacy capabilities are applied in English when students critically interpret and evaluate texts (ACARA, 2017c), with a broad multi-literacies (New London Group, 1996) text definition (see Chapter 2) applied to O&M learning and teaching. Also underpinning the English literacy strand are the general capabilities of numeracy, CCT, and PSC.

Students develop numeracy capabilities in English when they explore sound patterns and learn about tables, diagrams, maps and graphs (ACARA, 2017c). Numeracy concepts also apply in English when students interpret, analyse, and create texts involving numbers, measurement, and directions. CCT skills in English are essential for "developing analytical and evaluative skills and understandings" (ACARA, 2017c, p. 2). In addition, ACARA (2017c) states that students use CCT when discussing the aesthetic or social value of texts, and when they "share personal responses and express preferences" for specific texts. Further, ACARA (2017c, p. 3) suggest that there are many opportunities for students to develop PSC in English, such as developing communication skills, self-expression when articulating their own opinions and beliefs, and interacting and collaborating with others.

Similarly, the general capabilities of literacy, numeracy, and CCT underpin the core learning area of mathematics. For example, students use literacy in mathematics to pose and answer questions; engage in mathematical problem solving; and discuss, produce, and explain solutions. Students develop numeracy capability in mathematics through creating and interpreting a range of texts, such as timetables, calendars and maps (ACARA, 2017d). According to ACARA (2017d), students develop CCT in mathematics as they learn to generate and evaluate knowledge, ideas and possibilities, and seek solutions. Additionally, CCT skills in mathematics may be applied through activities that relate students "learning to their own lives and communities, such as time management, budgeting and financial management … in everyday contexts" (ACARA, 2017d, p. 3).

In the vignettes presented in this chapter, all three students with VI demonstrated literacy, numeracy, CCT, and PSC as they developed awareness of their "non-visual" space (Saerberg, 2010, p. 376) during their O&M lessons. Annie, Kelly, and Josie engaged with

literacy as they employed comprehension strategies to navigate, interpret, and analyse their social, cultural, environmental, auditory, and spatial texts. They applied text knowledge to understand different text structures, word knowledge as they engaged with environmental print, and visual knowledge as they interpreted visual elements within their environment. Most importantly, these students engaged with numeracy as they operated with clocks and timetables, and estimated and measured the distances of auditory and spatial texts and objects. They applied their knowledge of the value of money to purchasing and budgeting in authentic contexts, and applied spatial reasoning as they interpreted maps and diagrams, and when describing key features in their environment.

The three students with VI in my study engaged with CCT as they made sense of, gathered, and assessed information and ideas, and collected, compared, and evaluated information from a range of sources in their environments. They generated alternatives to guide their actions as they sought navigation solutions to maintain their flow of travel. Moving through a complex range of environments, Annie, Kelly, and Josie transferred knowledge into new contexts and considered their options when exploring and interpreting the different spatial, social, and cultural texts. Likewise, throughout their O&M learning, these students demonstrated PSC. They developed a realistic sense of their personal abilities, qualities, and strengths as they explored multiple ways of gathering information from their environment. They learnt about their functional visual abilities (through self-reflection) and identified personal characteristics that contributed to or limited their effectiveness in navigation and social interactions. I observed that they were continuing to develop and consolidate their resilience as they managed and monitored their own emotional responses, and persisted in completing tasks and overcoming obstacles of traversing and learning in a visual culture. More importantly, I perceived that they understood themselves as learners as they developed confidence to take and manage risks as they executed purposeful movement.

For these students, the construction of space and determination of place is perceived and experienced differently than their sighted peers (Saerberg, 2010). Annie, Kelly, and

Josie's "style of perception" (Saerberg, 2010, p. 364) is unique to their own biophysical qualities (see Chapter 2) and functional vision capabilities (see Chapter 1). Therefore, the ability to overlap and embed their O&M learning with their curriculum learning may provide multiple opportunities for more inclusive ways of thinking and of initiating equal access to the curriculum. Adopting more inclusive ways of thinking and working is not a project, but a process (United Nations Children's Emergency Fund [UNICEF], 2013). In any education system, according to the United Nations Children's Emergency Fund (UNICEF) (2013, p. 16), "the curriculum is one of the major obstacles or tools to facilitate the development of more inclusive systems *[sic]*". The UNICEF (2013, p. 16) stated that curricula are often "extensive and demanding", with "limited flexibility for local adaptations to new approaches", and added that inclusive education curricula should include "content knowledge and skills relevant to the learner's context".

The ECC (see Chapter 2) identifies a range of disability-specific learning contexts that are relevant for students with VI (Ajuwon et al., 2015; Hatlen, 2006). According to McLinden et al. (2016, p. 182), the notion of an "additional or expanded curriculum" is linked to concepts of independence. However, the idea of an additional curriculum relinquishes teacher responsibility for teaching all learners and is subsequently inconsistent with recent conceptualisations of inclusive practices (McLinden et al., 2016). Further, Khochen (2016, p. 320) contended that the inclusion of the additional curricula has a negative effect on students in obtaining "equal access to the general curriculum".

Establishing and attaining a balance between core curriculum and ECC programs was identified by Scott (2015) as an important area of future research in the field of O&M and VI. Moreover, McLinden et al. (2016, p. 182) argued that "the core and additional curricula are not considered to be completely independent but rather, they overlap and intertwine". Nimmo (2008, p. 11) also identified the need to blend additional curriculum and core curriculum, stating that the ECC needs to be "interfaced with regular curriculum". Moreover, Khochen (2016) stipulated that many of the additional curriculum skills are rooted

in the content of the general curriculum; thus, integrating ECC skills into the general curriculum reduces competing demands on students' core skills and knowledge.

Chapter 7: The Microsystem.

Understanding the Practice of O&M Learning and Teaching

A summary analysis of the data collected in the Queensland Deloitte review (DoE, publishing as DET 2017) argued that up to half of the variation in outcomes for students with a disability could be addressed by ensuring universally accepted educational practices for all students. Thus, this research focuses on better understanding O&M learning and teaching as an accepted educational practice for students with VI (see Chapter 1). However, understanding the importance of O&M learning and teaching for students with VI first requires an awareness of the influence of VI on learning and development and insight into inclusive education practices.

In Chapter 2, I discussed the way Bronfenbrenner and Morris's (2006) six ecological systems provided a lens with which to view the effect of VI on learning and development for students with VI. I also deliberated on subsumer notions (inclusive education, Australian Curriculum, pedagogy, space, place and text) to aid an understanding of the many layers of O&M learning and teaching. I employed a hermeneutic phenomenology methodology underpinned by autoethnography and narrative inquiry to achieve the objective of better understanding the educational practice of O&M learning and teaching (see Chapter 4). To achieve this objective, I completed an interview with a parent of a student with VI and a class teacher of a student with VI, and sought greater validity and trustworthiness by consulting a panel of O&M specialists. I also audio-recorded the O&M lessons of three students with VI (Annie, Josie and Kelly) over one school semester (two school terms) and employed a combination of thematic and discourse analysis to interrogate the data (see Chapter 4).

The results from the parent and teacher interviews, and panel responses (see Chapter 5) highlighted the lack of awareness of the influence of VI, the role of O&M in learning and development for students with VI, and an education culture embroiled in high-stakes testing. The analysis of the interviews also emphasised the effect of the current educational objectives and parameters on learning and teaching for students with VI—parameters of a reductionist curriculum of literacy, numeracy, and high-stakes testing. In

Chapter 6, I presented anecdotal and planning documents to highlight themes in which O&M learning and teaching can be aligned with the Australian Curriculum aspects of English and mathematics, and the general capability elements of literacy, numeracy, CCT, and PSC. I also revisited diary entries and presented disconfirming evidence (see Chapter 6) that exposed areas of limited alignment of O&M learning and teaching with the Australian Curriculum.

In this chapter, I continue using the lens of the microsystem to present the results on the pedagogy of O&M learning and teaching. According to Bronfenbrenner (2005), the microsystem is the students' immediate environment (see Chapter 2). For the students with VI in my study, the microsystem included the practices and pedagogy of O&M learning and teaching, the interactions between O&M teacher and student, and the interactions between students and their environment (McLinden et al., 2016). Using a discourse analysis (see Chapter 4) of the lesson transcripts, I examined the dialogue, language and lexical patterns in the O&M learning and teaching episodes. I completed this in an attempt to better understand the practice of O&M learning and teaching. I first present the results of the discourse analysis, and then illustrate these findings with two vignettes supplemented by thick descriptions (Denzin, 2001) and reflections. I specifically interrogate two lessons—the first with Annie, titled "you to me", and the second with Josie, titled "me to you"—as an illustration of the specifics of the O&M learning and teaching pedagogy. These vignettes exemplify the possible effect on learning and teaching for students with VI through variations in language and pedagogy.

Language and Talk Type

Research into teacher language used in literacy lessons by Edwards-Groves et al. (2014) found that there are generally two types of identifiable talk in classroom discourse: procedural and exploratory. In procedural talk, the emphasis is on the student responding to questions in an appropriate manner, with evaluation from the teacher (Edwards-Groves et al., 2014). Procedural talk is categorised as an IRE sequence. The second type of talk (exploratory or dialogic talk) requires the student

to be “actively engaged” in the learning process through “deliberate participation” (Edwards-Groves et al., 2014, p. 5). The planned use of processes and functions of exploratory teacher talk makes the learning more accessible (Edwards-Groves et al., 2014). I used an appropriation of Edwards-Groves et al. (2014) definitions of teacher talk (see Table 4.11) to determine the percentage of each talk type across the O&M lessons. I compared the results from the O&M lessons (see Table 7.1) with the analysis of the functions of talk in literacy lessons (see Table 7.2) by Edwards-Groves et al. (2014).

The results from the analysis of the functions of teacher talk type in O&M learning and teaching indicated that a variety of types of talk were applied within and across the O&M lessons. There was a substantial amount of process talk (40%), such as talk that explicitly modelled the thinking process—for example, “think alouds” and “I wonder” statements. Informative types of talk, such as “where is” and “there is” declarative statements, represented the least (6%), while feedback type talk represented 10% of the talk. Half of the function of talk in the O&M lessons concentrated on learning about the how, what, and why of O&M (50%), while the least amount of talk focused on the management of the O&M lesson (9%). This is in direct opposition to the functions of talk in literacy groups determined by Edwards-Groves et al. (2014).

Table 7.1. Summary of the Percentage of Talk Types used in O&M Lessons

Category/ Type of talk	% of Talk Type	% in terms of focus/ function of talk	Focus / Function
Instructional Management	9	9	Organising for O&M
Reconstruction Restatement	11	41	Doing O&M
Elaboration Projection	12		
Closed questions	12		
Informative	**6**		
Process	**40**	50	Learning about how, what and why of O&M
Utility	0		
Feedback	10		

In their book, *Classroom Talk*, Edwards-Groves et al. (2014) reported on studies of literacy lessons interrogated for types and functions of talk (see Table 7.2). According to the authors, the findings were consistent across 18 literacy sessions. In their analysis of literacy lessons, the greatest percentage of talk type was reconstruction or restatement (35%), such as repeating students' answers. In contrast, process talk type, such as the explicit modelling of cognitive activity and thinking processes, represented the least (5%). Further, Edwards-Groves et al. (2014) found that the greatest percentage (69%) of talk function focused on "doing" literacy, while only 6% of talk focused on learning the "how" and "what" of literacy. Most significantly, Edwards-Grove et al. (2014) concluded that most teacher talk in literacy lessons focused on the organisation of the literacy lesson, such as classroom management and the "doing" of literacy, as opposed to learning about literacy. In the O&M lessons in the current study, the reverse situation applied (see Figure 7.1).

Table 7.2. Summary of the Percentage of Talk Types from Eighteen Primary Reading Lessons[1]

Category/ Type of talk	% of Talk Type	% in terms of focus/ function of talk	Focus / Function
Classroom Management	5	25	Organisation
Literacy Management	20		
Reconstruction Restatement	35	69	Doing Literacy
Elaboration Projection	23		
Informative	11		
Process	5	6	Learning about how, what, when and why about engaging in Literacy
Utility	1		

Note. [1]From *Classroom talk: Understanding dialogue, pedagogy and practice, (p. 123), by C.* Edwards-Groves, M. Anstey, and G. Bull, Newtown, NSW: Primary English Teaching Association Australia [PETAA]. Copyright 2014 by PETAA. Reprinted with permission.

Feedback

According to Hattie and Timperlay (2007, p. 81), feedback is "one of the most powerful influences on learning and achievement". They argued that the "type of feedback and the way it is given can be differentially effective". They suggested that feedback needs to specifically fill the gaps between what is "understood and what is aimed to be understood". Looking more closely at studies of accomplished teachers, Hattie and Timperlay (2007) recorded the most common form of feedback as praise (self-personal) with very low feedback to task. According to these authors, relating feedback to the task and the process had greater effect on student achievement and cognitive processing. In addition, Hattie and Timperlay (2007) found that feedback to processes, such as thinking strategies, was

effective and important in error detection, self-correction, and decisions to choose different strategies. More specifically, “feedback at the process level enhances deeper learning”, while feedback at the self-regulation level results in “enhanced self-efficacy” (Hattie & Timperlay, 2007, p. 93).

I used Hattie and Timperlay’s (2007) categories and descriptions of teacher feedback (see Table 4.12) to analyse the O&M learning and teaching episodes (see Table 7.3). My analysis indicated that the majority of feedback across the O&M learning and teaching episodes was at the process level (33%). That is, most feedback in the O&M lesson was directed towards specific strategies and thinking. The next highest O&M teacher feedback was student self-regulatory (26%)—for example, statements such as “you already know the key features of”. Feedback at the self-personal (praise) level was equally high (23%). However, there was little feedback (4%) provided to students regarding future learning and strategies.

Table 7.3. Feedback Type used in the O&M Lessons

Category/ Type of talk/ feedback	Total of overall feedback	% of overall feedback type
Task	18	14
Process	42	33
Self-Regulatory	33	26
Self- Personal	29	23
Future	5	4
Total	**127**	**100**

Mean Length of Utterance (by Morpheme)

A morpheme is the smallest unit of language that still has meaning (Brown, 1973). A bound morpheme is a morpheme that appears only as part of a larger word, whereas a free morpheme or unbound morpheme is one that can stand alone. Morphemes function as the

foundation of language and syntax, and are subsequently important in the semantics or meaning of language (Bellaire, Plante, & Swisher, 1994). The complexity and frequency of morphemes has been linked to developing literacy skills, such as oral language, increased word knowledge and reading comprehension (Bellaire et al., 1994; Rochester Institute of Technology, 2018).

I used Casby's (2011) definition of an utterance and Brown's (1973) explanation of morphemes (see Table 4.17) to calculate the total words as morphemes per utterance, subsequent mean length of utterance (MLU), total number of utterances, and ratio of teacher to student talk. In Table 7.4, the lessons are presented chronologically from the start of the semester to the conclusion of the semester three months later. The lessons are prefaced with the student initials—"J" for a lesson with Josie, "K" for Kelly, and "A" for Annie. In this manner, it was possible to analyse changes to the MLU, number of utterances, and total word count over the semester and between students. The results for the MLU (see Table 7.4) indicated that, in general, I used almost three times more words than did the students with VI, had twice the MLU as the students, and had a slightly greater overall number of utterances. This would be consistent with an expected higher level of complexity of command of oral language. My lowest MLU (5.6) was recorded in a lesson with Annie (A240317), while my greatest MLU (49.9) was recorded in a lesson with Josie (J240417). The lowest student MLU (2) was recorded in a lesson with Kelly (K020517), while the greatest student MLU (11.9) was recorded in a lesson with Josie (J240317).

However, interrogating the MLU over the semester for the three students provided another layer of understanding the practices of O&M learning and teaching. The MLU for Annie remained fairly stable over the semester, although the highest MLU for Annie (10.3) was recorded towards the end of the semester. However, the MLU for both Josie and Kelly decreased over the semester, with the highest MLU recorded for Josie (11.9) and Kelly (8.9) in their first lesson of the semester. Stated another way, the level of complexity of Josie's and Kelly's dialogue decreased over the semester, while Annie's increased over the semester. This may also be consistent with Annie's developmental, cognitive and oral

language control as a six-year-old student (Department of Education Western Australia, 2013).

I deliberated over the unusual nature of the MLU calculations for Josie and Kelly. In my diary, I wrote:

> *I can't explain why there's a reduction in the MLU over the semester, it was an unexpected result. At this stage I can only make a guess. When I look at the lesson contexts—Josie's lessons were more gestural and nonverbal, perhaps more considered and attentional—perhaps this made a difference*?

Upon reflection of Josie's O&M lessons, I discovered that, in the later lessons, her utterances appeared to be more the single conversational clauses, such as *"yeah", "mmm"* or *"okay".* I noted in my diary: *"Perhaps, the new high school environment required Josie's complete visual attention and exploration, with her language and articulation developing as she becomes more familiar with her surroundings".* This notion would be consistent with the theories of Brannock and Golding (2000), who suggested that students with VI can attend to only one thing (see Chapter 2), and with Vygotsky's (McInerney, 2015) theories of internalised and sub-vocalised language. According to Vygotsky, students become more able to "use their own speech (rather than the speech of others) to guide their behaviour and solve problems" (McInerney, 2015, p. 60). I also pondered the difference in number of lessons between Josie, Kelly, and Annie, writing in my diary:

> *Overall there were only two lessons for Kelly, so perhaps these data are a reflection more on the difficulties of developing the O&M language interaction from an irregular outreach service, whereas Annie received several regular short lessons and the interaction had greater opportunity to develop*.

Kelly's lesson data were also potentially affected by the interactions that occurred (one of which is highlighted in the next chapter—Chapter 8).

As shown in Table 7.4, my least number of words was 340, compared with 83 student words recorded at the start of the semester in the lesson with Annie (A160317). This is substantially different to the number of words during an O&M lesson recorded for Annie

(783) and me (1,315) later in the semester (A240417). That is, Annie increased the number of words she uttered in an O&M lesson by nearly 10 times over the duration of the semester. The greatest number of words recorded for me (4,260) and for the student (2,284) occurred later in the semester in a lesson with Josie (J240417). This was likewise substantially different and almost 10 times greater than the number of words recorded for Josie (252) and me (191) in an earlier lesson (J240317). However, the total number of words recorded for Kelly during her O&M lessons halved over the semester, with 730 words recorded at the start of the semester, and 315 total words recorded for Kelly at the end of the semester.

However, there was little difference between the total number of utterances for me (1,411) and the students (1,122). My greatest number of utterances (212) was in a lesson with Josie (J240417). In that same lesson, Josie recorded the greatest number of student utterances (273). The least number of utterances by both me (14) and the student (12) was in a lesson with Annie early in the semester (A160317). However, there were three lessons—two with Annie (A130317 and A200317) and one with Josie (J240417)—in which Annie and Josie offered more utterances than me.

To summarise, although Kelly decreased the total number of words and MLU between the start and end of the semester, she almost doubled the number of utterances from 85 at the start of the semester to 153, thereby indicating that, by the end of the semester, she was talking more, yet with shorter, simpler sentences. I retrospectively considered that perhaps Kelly was either using her language in more precise ways, or that the meaning attached to words by Kelly (similar to many students with VI) was limited and not being extended to new referents (Anderson, Dunlea, & Kekelis, 1993). The results of Anderson et al.'s (1993) morphological study suggested that there are differences in morphological development between students with VI and their sighted peers, particularly around time and space concepts. It is possible that Kelly's O&M program concentrated more on time/space concepts that were beyond her language experiences. For Annie, her oral language continued to develop over the semester, with increases in words, utterances, and complexity. Likewise, Josie substantially increased the total number of utterances and

number of words, yet reduced her mean length of utterance. Like Kelly, she was conversing more readily, yet with simpler statements.

Reciprocity

A major structure of general classroom practice is that teachers talk two-thirds of the time (Edwards-Groves et al., 2014). In other words, in regular classrooms, there is a talk ratio of two teacher talk turns for every one student talk turn (2:1). This sequence of teacher turns in talk is frequently observed as the Initiate Respond Evaluate (IRE) talk type previously indicated. Edwards-Groves et al. (2014, p. 48) suggested that this type of interaction closes the "communicative space and limits the scope of the responses".

Column 3 in Table 7.4 provides a comparison of the number of teacher utterances to number of student utterances. This is identified as the rate of reciprocity or ratio of teacher to student utterance (see Table 7.4). This ratio is considered an indication of turns in the dialogue or conversation. Overall, the ratio of teacher to student utterances was 1.3:1. In other words, for every 1.3 teacher turns in the conversation, the student has approximately one turn. This represents more shared talk turns in the O&M learning and teaching than in the ratio identified in the regular classrooms by Edwards-Groves et al. (2014). Notably, in three lessons—two with Annie (A130317 and A200317) and one with Josie (J240417)—a reverse ratio was observed, where there was less teacher than student utterance. That is, I had fewer turns in the conversation than did either Annie or Josie. Further, there was only one lesson with Annie (A240317) where there was a teacher to student utterance ratio greater than 2:1.

Over the semester, the ratio of teacher to student talk turns remained mostly the same. However, for Josie, there was a change in teacher to student ratio, with the ratio recorded as 1.2:1 earlier in the semester and 0.8:1 later in the semester (see Table 7.4). These results indicate that, towards the end of the semester, Josie's control and direction of the communicative space within the O&M lesson was increasing. The overall results of the teacher to student ratio of talk turns suggest that there is greater equality in the talk turns between teacher and student in O&M learning and teaching. This means that there is

potentially a greater tendency towards greater reciprocity and democratic turn taking during an O&M discourse than in regular classrooms.

Table 7.4. Words per Utterance of Teacher and Student in O&M Lessons

Lesson	Number of Utterances		Reciprocity. Ratio of teacher to student utterance	Total Word (as morpheme) count		MLU (mean length of utterance)	
	Teacher	Student	Ratio	Teacher	Student	Teacher	Student
K100317	128	85	1.5 :1	1903	730	14.9	8.9
A 130317	17	20	**0.8 :1**	449	194	26.4	9.7
A160317	**14**	**12**	1.2 : 1	**340**	**83**	24.2	6.9
A 170317	21	14	1.5 : 1	370	105	17.6	7.5
A 200317	109	113	0.9 : 1	2844	671	26	5.9
A 240317	193	85	**2.3 : 1**	1081	665	**5.6**	7.8
J 240317	19	16	1.2 : 1	252	191	13.3	**11.9**
A 290317	97	96	1 : 1	2092	638	21.5	6.6
A 210417	127	82	1.5 :1	1303	622	10.2	7.6
J 210417	137	97	1.4 : 1	1480	665	10.8	8.2
A 240417	124	76	1.6 : 1	1315	783	10.6	10.3
J 240417	212	**273**	**0.8 : 1**	**4260**	**2284**	**49.9**	8.3
K 020517	**213**	153	1.4 : 1	2458	315	11.5	**2**
Total	**1411**	**1122**	**1.3: 1**	**20147**	**7946**	**14**	**7**

Wait Time

A study on the effects of wait time for students with VI and additional disabilities by Johnson and Parker (2013) determined that children with VI and additional disabilities "need time to process what is being asked in order to respond appropriately" (p. 363). An earlier literature review by Rowe (1986) on typical wait times across a range of classroom and learning environments also investigated wait time for students with disabilities. According to Rowe (1986), class teachers react or respond to student answers in less than one second, with wait time under one second resulting in short phrased student responses without any complexity. In contrast, Rowe (1986) found that student inferencing responses increase after three seconds of wait time. Rowe (1986) suggested that cognitive explanations and ideas come in bursts often in excess of five seconds, and that anything less than two to three seconds is too short for thoughtful cognitive processing.

According to Rowe (1986), increasing the wait time to two to three seconds resulted in marked consequences for both teachers and students, with pronounced changes in student motivation, logic, and language. In particular, Rowe (1986, p. 42) found that "I don't know" responses were frequently associated with shorter wait times. Rowe (1986, p. 43) stated:

> To grow a complex thought system requires a great deal of shared experience and conversation. It is in talking about what we have done and observed, and in arguing about what we make of our experiences, that ideas multiply, become refined, and finally produce new questions and further explorations.

I recorded wait time as the response time between students' attention to dialogue and/or text (Brannock & Golding, 2000). The results for wait time are displayed in Table 7.5. On average, I employed a mean wait time of approximately three minutes (170 seconds) before responding to the students. In general, this accounted for over 16% of the total O&M lesson duration. In one lesson with Josie (J 240417), my total amount of wait time was substantially higher (997 seconds) than in other lessons—in other words, approximately 16 minutes and accounting for over 37% of the total lesson duration. I recorded the smallest

amount of wait time in a lesson with Annie (A170317), totalling only 20 seconds of wait time, yet this wait time accounted for over 13% of the total lesson duration. A protracted wait time, as evident in the results from the O&M lessons is a major shift from conventional teaching practices and a significant factor in the interaction.

Over the semester, there was a decrease in total wait time for Kelly, with 155 seconds at the start of the semester and 130 seconds at the end of the semester. There was also a resulting decrease in the percentage of wait time for the overall lesson duration for Kelly, from 13.4% to 9.2%, yet an increase in mean wait time (3 to 7.3 seconds). For Annie, my total wait time substantially increased over the semester from 31 seconds (A160317) to 303 seconds (A240417), with the mean wait time increasing respectively, and the percentage of wait time over the lesson duration increasing dramatically from 9.8% (A130317) to 24.7% (A240417). Stated another way, approximately one-quarter of Annie's lesson was wait time. Likewise, for Josie, there was a dramatic increase in my total wait time from the start of the semester (22 seconds) to the end of the semester (997 seconds), and a resulting increase in the percentage of wait time for the overall lesson duration.

Table 7.5. Teacher Wait Time in O&M Lessons

Lesson	Total length of lesson (min)	Total Wait Time per lesson (seconds)	Mean wait time per lesson (seconds)	% of overall lesson duration
K100317	19.33	155	3	13.4
A 130317	4.26	25	1	9.8
A160317	**3.14**	**31**	**2**	**16.5**
A 170317	**2.48**	**20**	1	13.4
A 200317	36.08	115	2	5.3
A 240317	19.04	98	3	8.6
J 240317	**2.43**	**22**	1	15.1
A 290317	18.55	112	2	10.1
A 210417	14.03	74	3	8.8
J 210417	**15.68**	**147**	**2**	**15.6**
A 240417	20.47	303	**6**	24.7
J 240417	**45.38**	**997**	2	**37.6**
K 020517	23.46	130	**7.3**	9.2
Total wait Time	**224.33**	**2229**	**171** (2.9 minutes)	**16.6**

An Anomaly in the Data

The two lessons (A160317) and (J210417) (see Tables 7.4 and 7.5) specifically represented an anomaly that was identified in the data during the thematic analysis stage and pattern-matching stage. The pattern matching (see Chapter 4) first involved identifying broad categories of data that appeared similar, and then sweeping the data for examples to claim a pattern, and finally searching for irregularities in the patterns. Using this process, the two lessons (A160317) and (J210417) were extracted as pattern irregularities.

I considered the difference in the lesson patterns as potentially indicative of a change in conditions for learning—a change that may have offered a deeper insight into the implicit practices of O&M learning and teaching. I also believed that this anomaly in the pattern of lessons necessitated further interrogation. This resulted in the triangulation of the data from

the pattern matching of these lessons. The triangulated analysis led to a deeper interrogation of the talk type and feedback for these lessons (see Tables 7.9 and 7.10), an interrogation of the lexical density (LD) and verb types used in the dialogue of the lessons (see Table 7.7), a comparison of the LD before and after the change in talk type pattern in Annie's lesson (see Table 7.8) and examination of the lesson contexts. The lesson contexts are presented in the vignettes later in this chapter.

Lexical Density and Processual Verbs

The function of teacher talk was identified in research by Edwards-Groves et al. (2014) as important in actively engaging learners in the learning process (see Table 7.2). In addition, the type of teacher talk—particularly processual or content verb use by teachers—was confirmed to shape students' approaches to learning and thinking (Edwards-Groves et al., 2014). Conversely, according to these authors, the presence of processual verbs—termed relational, material, and mental verb types—in teacher dialogue either constrained or enabled students' learning. Most importantly, a dominance of relational verbs constrained students' understanding of knowledge and facts, and a proportional use of relational, material and mental processes enabled precise direction and focus on the cognitive and metacognitive aspects of learning (Edwards-Groves et al., 2014).

Further, according to Lankshear and Knobel (2004, p. 345), lexical density (LD) refers to the "proportion of content words in a text" and is considered an indication of the complexity of the dialogue (see Chapter 4). I used the definition of processual verbs (see Table 4.20) as proposed by Edwards-Groves et al. (2014) to calculate the LD of the two anomaly lessons. I determined the LD (see Table 4.21) by calculating the content words, such as verbs and nouns, in the dialogue of the O&M lessons. The LD of the two lessons (A160317) and (J210417) is displayed in Table 7.6. In both lessons, my LD was higher (41.5 and 38.6) than either Annie (30) or Josie (26.5), with Annie (the younger of the two students) having a higher LD than Josie. Although Josie had a greater number of words, utterances, and lexical words

than Annie, I used a higher mean number of relational (6), material (2.5) and mental (2.3) verbs in my dialogue with Annie than I did with Josie (3.2 relational, 2 material, and 1.4 mental). The higher percentage of relational verbs indicates attention to statements denoting possession or circumstances and generally telling what something is (Edwards-Groves et al., 2014).

Table 7.6. Lexical Density of Two O&M Lessons

Teacher/ Student	Total number of utterances	Ratio of teacher to student utterance	Wait time as % of overall lesson duration	Mean of Process words	Total word count	Total lexical words	Lexical Density (LD)
A160317							
Teacher	14	1.2: 1	16.5		340	141	41.5
Relational				6			
Material				2.5			
Mental				2.3			
Student	12				83	25	30
J210417							
Teacher	137	1.4: 1	15.6		1480	572	38.6
Relational				3.2			
Material				2			
Mental				1.4			
Student	97				665	176	26.5

To further interrogate the lesson with Annie and better understand the change in pattern of the talk type in the lesson, I compared the LD before and after the pattern change and broke down my use of processual verbs, the number of utterances for Annie and me, the ratio of teacher to student talk, and the mean wait time before and after the pattern change (see Table 7.7). Both Annie and I had a greater LD (46.2 and 39.4, respectively) before the pattern change than after (34.8 and 24, respectively)—that is, during the IRE talk type sequence, rather than after. I used approximately half of the mean number of material and mental verbs (1.8) after the change than I did before (3.2), although there was no

change in the mean number of relational verbs. This means that there was a decrease in verbs describing the process of doing and the metacognitive processes (Edwards-Groves et al., 2014) after the pattern change in Annie's lesson, although the number of verbs relating to facts and statements remained high throughout the lesson. Specifically, overuse or inappropriate focus on relational verbs leads to students identifying knowledge and facts as static and unavailable for critical analysis (Edwards-Groves et al., 2014).

However, there was an inverse relationship with the total number of utterances before and after the pattern change. Although I had the greater number of utterances throughout the lesson (191), the number of utterances I offered decreased after the pattern change (141), and the number of utterances Annie used increased from 33 to 50. Therefore, Annie may have talked more after the change in pattern than before the change. There was a substantially higher than average ratio of teacher to student talk (6:1) before the pattern change, and, although there was a decrease in the ratio of teacher talk turns (3:1), the ratio remained higher than average for all lessons after the change. In contrast, the mean wait time increased from 1.6 to 2 seconds after the pattern change, with the wait time as a percentage of the overall lesson duration increasing from 4% to 12%. However, the average wait time before the pattern change was below the average wait time (2.7 seconds) across all lessons. Essentially, this indicated that, though I continued to dominate the dialogic exchange, I waited longer to respond to Annie. I provide further explanation regarding the anomalies of the two lessons in the vignettes that follow.

Table 7.7. Lexical Density Before and After the Difference in Pattern of the Lesson with Annie

A160317			Teacher	Student
Lexical density	Before		46.2	39.4
	After		34.8	24
Mean of Process talk	Before	Relational	6	
		Material	3.2	
		Mental	3.2	
	After	Relational	6	
		Material	**1.8**	
		Mental	**1.4**	
Total number of utterances	Before		191	33
	After		141	50
Ratio teacher to student utterance	Before		6 : 1	
	After		3 : 1	
Mean wait time	Before		1.6s	
	After		2s	

Comparing the Talk Type for the Two Lessons

Having examined the LD for the two lessons (A160317 and J210417), I returned to an examination of the talk types (see Table 7.8) and feedback types (see Table 7.9) of the two lessons. I completed this in the hope of better understanding the pattern change observed in the O&M learning and teaching episode with Annie and the difference between Annie's lesson, Josie's lesson, and the remainder of the lessons. This examination enabled me to look more closely at the pedagogy of the lessons, and particularly to triangulate the data.

I first identified that, for both lessons, all the talk occurred in the guided implementation (teaching, practice application) phase. This was uncharacteristic of all the other lessons, where the talk type was spread across all the lesson phases. Moreover, only

the lesson with Josie (J210417) displayed consistency in the teacher talk across the whole lesson, and with a variety of all talk types applied. In addition, the pattern of talk type in Josie's lesson indicated a reconstruction, elaboration, process, feedback talk type pattern that was not easily discernible in any other lesson. According to Edwards-Groves et al. (2014), this talk type pattern would be represented by a paraphrasing, inferential thinking, and explicit modelling of the cognitive activity and thinking processes (see Table 4.11).

Clearly, there was a distinct difference identified in the pattern between the start and end of Annie's lesson (A160317), which was not observable in any of the other lessons. Specifically, an inconsistency of teacher talk type was identified, with a dense pattern of IRE sequence detected only in the first part of the lesson. There were also substantially more process, elaborations, process talk type patterns towards the end of the lesson than in any other lesson. Generally, this would indicate a pattern of explicitly modelling the cognitive aspects of the task, followed by drawing on prior knowledge and inferential thinking (see Table 4.11) (Edwards-Groves et al., 2014). Most importantly, the lesson with Annie was the only lesson without any reconstruction or informative talk type.

In Annie's lesson, I provided a greater percentage of instructional (7%), elaboration (29%) and process talk (42%) than I did in Josie's lesson. In fact, I did not use any reconstruction/restatement or informative talk in Annie's lesson, whereas reconstruction/restatement talk type was the second-highest percentage (18%) of talk in Josie's lesson. Although Josie had a higher percentage of closed questions (12%) than did Annie (8%), the pattern matching revealed that the closed questions in Josie's lesson were consistently spaced across the lesson, and not associated with an observable IRE pattern. Looking more carefully, the closed question and closed answer pattern identified in Annie's lesson was only present before the pattern change.

The greatest emphasis on the function of talk (56%) in Annie's lesson was learning the "how", "what" and "why" of O&M, while, in Josie's lesson, the greatest emphasis for the function of talk (50%) was the "doing" of O&M learning and teaching. Essentially, there was

a higher focus on “getting things done” (Edwards-Groves et al., 2014, p. 124) in Josie’s lesson than on the organisation or the “why” or reasons for O&M learning and teaching.

Table 7.8. Comparison of Teacher Talk Type Between Two O&M Lessons

Category/ Type of talk	% of Talk Type		% in terms of focus/ function of talk		Focus / Function
	Annie	**Josie**	**Annie**	**Josie**	
Instructional Management	7	5	7	5	Organising for O&M
Reconstruction Restatement	0	18	37	50	Doing O&M
Elaboration Projection	29	17			
Closed questions	8	12			
Informative	**0**	**3**			
Process	42	35	56	45	Learning about how, what and why of O&M
Utility	0	0			
Feedback	14	10			

Table 7.9 provides a comparison of teacher feedback during the two O&M lessons (A160317 and J210417) that had data pattern irregularities. The results indicate that I provided Annie with a higher percentage (14%) of feedback than I did for Josie (10%). However, I actually gave Annie a smaller total number of feedback statements (two) than I did for Josie (14). The majority of feedback (64%) provided to Josie was in terms of future practice and strategies. According to Hattie and Timperlay (2007, p. 86), feedback for the future leads to greater possibilities for learning and addresses the “where to next” cognitive processes. Looking more closely at Annie’s lesson, I provided only one piece of feedback on process and one piece of feedback regarding her self-personal (praise). Through the following vignettes of the two lessons, I was able to reflectively and introspectively explore the characteristics of O&M pedagogy that I may otherwise have failed to see.

Table 7.9. Comparison of Teacher Feedback of Two O&M Lessons

Category/ Type of talk/ feedback	Total of overall feedback		% of overall feedback type	
	Annie	**Josie**	**Annie**	**Josie**
Task	0	1	0	7
Process	1	4	50	29
Self-Regulatory	0	0	0	0
Self- Personal	1	0	50	0
Future	0	9	0	64
Total	**2**	**14**	**100**	**100**

Hermeneutic phenomenology (see Chapter 4), as argued by Friesen et al. (2012, p. 8), "illuminates aspects of pedagogical practice often overlooked by researchers but deeply felt by teachers". As a consequence, hermeneutic phenomenologists "bring out the ways in which meanings occur in a context" (Friesen et al., 2012, p. 22). In theory, anecdotal narratives are important for pedagogy because they "function as case material on which pedagogical reflection is possible" (Van Manen, 1990, p. 120). Thus, applying hermeneutic phenomenology to the two O&M lessons provided me with an opportunity to explore the meaning of the discourse analysis within the context of the anecdotal narrative of the O&M lessons.

A reflective examination of the lessons provided examples of the context and structures (Charmaz, 2006) pertaining to O&M pedagogy. These examples offered insight into the pattern anomalies, and subsequently assisted in better understanding the practice of O&M learning and teaching. Vignette 1 represents Annie's lesson (A160317) and is titled "*You to me … me to you*". The second vignette represents Josie's lesson (J210417) and is titled *"Me to you and you to me"*.

Vignette 1: "You to me … me to you" (A160317).

Notwithstanding teaching experience or background, one's own teaching agenda easily ensnares lessons. As teachers, we are inclined to charge on through our lessons, aware of

imposed time constraints, to keep everything and everyone moving to our predetermined lesson conclusion. The more reflective teachers may realise that, in powering on, sometimes there are students who are left behind. When asked, we may identify these students and recognise that they are a small few in our class. We might even impose labels and inabilities on them, or attribute their failings to influences that are outside our control. We might issue them with behaviour choice reminders, change their sticker to a sad face, or move the sticker down the ladder of the whole-class behaviour chart towards the inevitable "buddy classroom". Alas, my experience is that teachers are rarely reflective practitioners, aware of or attuned to their own lack of awareness about what students with VI are attending to at any time. My lack of responsiveness to the "one thing" (Brannock & Golding, 2000) holding Annie's attention becomes a detriment to her learning and to the productive outcome of this particular lesson recounted below.

As a rule, I complete most O&M lessons outside the classroom, with a one-teacher-to-one-student ratio, and either within the school campus or off campus in the broader community. As an itinerant and outreach specialist, there is little option to reschedule lessons if issues arise. Further, there is rarely the luxury of a quiet area in a classroom to complete the teacher-led stage of the lesson; a bench outside the classroom is my most common conferencing post. On the day of this vignette, a beautiful tropical North Queensland downpour compromised my conferencing post. Classes usually conducted in outdoor environments at this time—such as physical education (PE)—were relocated to the undercover eating area, along with Annie and me. This eating area was no more than 30 metres in length, and was complete with a tin roof for the benefit of added noise. It was also the main covered and dry walkway to the administration, tuckshop, and library areas of the primary school.

Having recently engaged in an explicit teaching workshop, I was keen to try out my new understandings in an O&M learning and teaching setting. My agenda in this 20-minute lesson was to co-construct an explicit learning statement. However, Annie, of course, had separate agendas. Her attention was elsewhere, thanks to the rain, noise, movement, and

congested and poorly illuminated environment. Moreover, not one of these environmental occurrences was assisting her functional vision capabilities. Annie's vision was possibly at her functional worst. Ordinarily, I would know this, be watching for this, and accommodate accordingly; however, on this occasion, I had my own agenda and was oblivious to Annie's environmental attention.

Annie and I had just sat down in the covered eating area. Seated side by side, Annie and I were within 30 centimetres of each other. I had my body oriented towards Annie; however, Annie was facing out to the class of children undertaking PE, and to the social text of the walkway. My gaze was specific and focused on the printed text that I held, while Annie was scanning the larger space, beyond one metre and outside her functional visual range. In hindsight, although Annie was trying to see, she was aurally attending to the auditory text in the large space of the eating area. Irrespective of this, and aware of time constraints, I rushed into the lesson, commencing with an instructional statement, and following without wait time with a closed question. Annie provided a closed answer: *"I don't know".* Without wait time, I ploughed on again. I attempted a productive question and then, without wait time, tagged on a closed question to the end of my utterance. Annie provided a closed answer: *"No".* Again without wait time, I started explaining the printed text, and pointed to the word. Annie tilted her head briefly towards me, and then returned her gaze and attention to the PE class. Annie's functional working distance for print is between five and 10 centimetres. Upon reflection, I realised that she would not have seen the printed text in that cursory glance, though, at the time, I took the inclination of her head towards the print as interest.

Five instructional utterances later, I offered Annie an elaborative question and two seconds of wait time, and again tagged on a closed question. Annie provided a closed answer: *"I don't know".* I rapid-fired another closed question, and proceeded to tell her *"I will give you some thinking time"*. However, within less than 0.5 of a second, I answered my own question with my own closed answer. Another two instructional clauses later, I provided a process think-aloud statement and took a breath for five seconds of wait time, and again added another closed question. Annie provided a closed answer: *"I'm not sure".* I finally

shifted my gaze to the social text and space to which Annie was attending. I paraphrased and provided two elaborative clauses before providing a processual think-aloud statement about the social text. However, I quickly followed this up with another closed question. Annie did not answer. I provided an elaboration about the definition of texts—*"What do you think a text might be?"*—and four seconds of wait time. Annie, her attention elsewhere, had not heard my question and shouted over the noise: *"I used to do textas in my prep".*

I continued vaguely trying to rescue the lesson. Annie continued to attend to the social text and the space of the undercover area. She interrupted my dialogue, shouting her own processual think aloud: *"That looks like Emily … I think they are going to PE"*. I finally gave up on the printed text and provided an elaborative comment: "*Why do you think they are going to PE?*". I then provided feedback to the process Annie was using: "*do you know what I just heard you doing? … you're [predicting] that they are going to PE*". I also provided feedback to the text to which she was attending: "*because you saw them walking*". She reciprocated with another processual think aloud, pointing, gestures, head nods and increased lexical content as she said: "*oh, they are going to the library*". I followed and attended to her point, and reciprocated with a further elaborative comment: "*Why do you think they are going to the library?"*. I provided extended wait time, and then offered feedback to her on her processes—"*so you just made a prediction about where the class was going*"—and feedback on her behaviour: "*Well done"*.

Our lesson was just beginning to change into a more productive and discursive interaction when, after three minutes, we were interrupted by extreme screeching of car brakes and car noise. Annie covered her ears and screamed, *"YOW!"*, then yawned, and asked if we could finish. Hence, the explanation for the shortened lesson interaction.

Reflection on vignette.

The vignette and discourse analysis provided me with an opportunity for close scrutiny of the language pattern identified in the data on Annie's lesson. I was able to discern the dense number of closed questions, closed answers and evaluative responses, and the variations in language type and function. Consequently, I could reflect that, at the start of Annie's lesson,

I had quickly established an IRE (Edwards-Groves et al., 2014) sequence. Annie only became actively engaged in the learning process when I changed the language function and type after nearly three minutes, and attended to the text and space (such as the PE class) to which Annie was attending.

According to Saerberg (2010, p. 364), “space is not a given. Rather space is constructed through subjective experience and social interaction”. He explained that, when interacting and interpreting space, it is necessary to link strategies to the style of perception and cognition used by students with VI. Saerberg (2010) claimed that space for a person with VI is individually constructed and based on the person’s knowledge, skills, and needs. He labelled this creation of space as “blind perception” (p. 377). Saerberg explained that “as a blind person, I obtain orientation and generate movement by creating a multimodal space of related sensory perception in a sensed unity of the world within my felt, tactile, acoustic, and olfactory reach” (p. 369). Saerberg has layers of reach tied to particular sensory fields, such as “the world within my visual reach”, “the world within my acoustic reach” and “the world within my olfactory reach” (2010, p. 368). Moreover, as Saerberg elucidated, “communication and interaction between the blind and sighted is complicated”, with the sighted person’s senses and functions “ordered differently, for specific social contexts” (p. 365).

For me, the lesson with Annie illustrates the problems encountered when the O&M communication partner or teacher misses the mark when considering the specific social contexts for students with VI. During interviews in my earlier research (Blake, 2015), the O&M specialists claimed that classroom learning generally involves directing and feeding information to students, whereas O&M teachers facilitate “independence” and “the development of skills and strategies that allow a person to manage themselves”. The O&M specialist interview participants from my previous research identified facilitating as a “different process” to most other learning and classroom activities. It was not until I worked as an insider researcher in the present study, retrospectively interrogating the lesson

transcripts, that I understood how much I had not facilitated, but negated and constrained, Annie's attempts at information gathering.

Upon reflection, I learnt a valuable lesson from this brief interaction with Annie. I now understand that a productive O&M interaction is, at any time, based on the student's interests and reactions—on "what is meaningful for the student" (Blake, 2015). What was meaningful for Annie in this particular O&M lesson was, as Saerberg (2010) stated, the world within her visual and acoustic reach. My reflective learning mirrors Lilli Nielsen's philosophy in what she termed the "technique of interaction" (Nielsen, 1990, p. 77). In *Are You Blind*, Nielsen (1990, p. 77) wrote:

> It is the child's reactions to the activities which tell how much the adult can do in giving the interaction the character of a >> me to you << and >> you to me << situation. If the child is refusing or turning inwards, it means that the adult has progressed too fast, and there is nothing else to do but return to playing next to the child. If the adult is progressing slowly enough, the child will gradually be interested in interactions which include more and more >> you to me << and >> me to you << situations.

Further, I reflected on Bronfenbrenner's interpretation of context as the interactions between the person and the processes. Bronfenbrenner (1979, p. 22) argued that the "aspects of an environment most meaningful to a person in any given situation are the most powerful in shaping growth". Based on observations by Neilsen and Bronfenbrenner, I reaffirmed the importance of attending and responding to students' attempts to gather information about their environment.

In many ways, my own agenda and visual thinking impeded a productive interaction with Annie during lesson A160317. With a large number of complex, lengthy, and direct statements; proportionally little wait time; overt control of the turns at talking; an IRE exchange; limited feedback; and a lack of attention to the environment, space, and text most relevant to Annie, I was not facilitating strategies for her independence. In fact, I constrained the O&M learning and interaction. Without knowingly considering my practice, I had

progressed too fast with the interaction, and had disallowed Annie opportunities to be interested in the O&M learning and teaching. The lesson dialogue and consequent pattern altered only when I changed my attention and facilitated the processes that Annie was using to attend to her environment. It was not until I shaped my attention to the space and text to which Annie was attending, and then subsequently changed my language, that we achieved shared, dialogic, and cooperative interaction and exploration of the environment.

Vignette 2: "Me to you and you to me" (J210417).

In my anecdotal observation teachers experience lessons which appear to move smoothly and effortlessly. As an advisory teacher, I have observed class teachers who might wonder and reflect upon what transpired to enable such a lesson. The teachers might observe a difference in student engagement, and observe transferred learning. They might attribute a good lesson to better planning, their own content knowledge, or simply student enjoyment. Over my years of teaching O&M, it has become obvious to me that students enjoy hands-on exploration. I also enjoy this, but perhaps for different reasons. I enjoy the reciprocal dialogue and changes in the students' understanding of their environment that occurs through hands on exploration. I particularly enjoy the moments when students make connections to broader environments, and to their own self-awareness, as in the following vignette from a lesson with Josie.

O&M learning and teaching is inclusive of many different types of programs. As Cmar (2015b, p. 19) stated, the "exact nature of O&M instruction depends largely on the age and development of each child, and O&M specialists must consider individual differences when planning instruction". Programs may be specific to traditional mobility skills, such as long-cane skill development. Other programs may be specific to compensatory skills, such as spatial, body, sensory, or environmental awareness. Still other programs may be specific to the development of social or self-determination skills. Often, the O&M learning and teaching program combines all these areas, with the end goal of the student independently and actively interpreting the environment. A transition program, such as Josie's O&M program,

includes the explicit teaching of the many strategies that Josie required to interpret the multiple spatial, learning, and sociocultural environments of her new school.

Josie's exploration of her new secondary school illuminated the importance of attending to and monitoring the attempts of students with VI at information gathering. During this lesson, we were supposed to be going to the science room; however, we had found our way to the tuckshop area of the secondary school, when it happened to be lunchtime. The school is the largest secondary school outside the Brisbane metropolitan region. It appeared to Josie and me that all the 2,500 students were milling in the tuckshop area. Consequently, there was a large volume of noise and pedestrian movement. The tuckshop was adjacent to the multipurpose shelter, which was currently in use, with students playing multiple indoor ball sports, and this activity added to the complete auditory experience.

Josie and I were seated side by side, and were close to each other. We were both facing the eating area in front of the tuckshop. We were scanning the large environmental space and social text. Josie's task for the lesson was to identify the spaces of the secondary school using a range of information. I posed a processual question, asking Josie what features we could use to *"describe this area".* Josie stated the obvious: *"There's the tuckshop". S*he pointed at the tuckshop and laughed. I looked towards the tuckshop, following her pointing gesture and asked a productive question: "*How do you know this is the tuckshop?*" Josie elaborated from her visual perspective pointing as she talked: "*There's a dark area over there"*. I shifted my body slightly to follow her gesture, looked towards the dark area, and paraphrased her statement: "*There's a dark area over to our left*". While we continued to look at the dark area, I offered Josie an elaborative question about our distance from the dark area: *"What do you think? A long way away?".* After only one second of wait time, Josie turned towards the dark area, pointed, and answered, "*A long way away".* She continued to answer my initial question about the features of the environment: *"There's a big, big, big, tree, a lot of leaves".*

Josie turned to look around at all the students before turning back to the tree. I waited two seconds as I observed her. When she turned to face the tree again, I imitated her

movement and also turned towards the tree. However, this time, I pointed, paraphrased, and added information as a think aloud about the dark area that Josie would be visually unable to define at this distance: "*a huge tree in the middle and it's also got like a concrete kind of brick area around it".* I provided her with feedback to the task: "*rather than saying 'a long way away'"*. I then gave her one second of wait time before adding, "*what about you estimate the distance [of the tree] in metres?*". Josie followed my point and we both continued to scan the dark tree-lined area. After four seconds of wait time, Josie replied with her own think aloud: *"I think … over 50, 50 metres"*. We were both still scanning the dark area when the bell rang. Josie jumped at the sound of the bell and we both turned to the direction of the bell. Josie placed her hands over her ears and I imitated the action, saying *"that's so loud"*. Josie, with her hands still over her ears, asked, *"Is that the bell?".* Together, we watched the massive movement and dispersion of the crowd. As the visual complexity of the movement faded and the bell stopped, I provided another productive question: "*What else do we know about this area*?". Josie, still reeling from the bell, turned towards the bell, laughed, and quickly answered, *"The bell's really close"*. I imitated her body orientation, so that we were both facing the bell. I also laughed, paraphrased her statement—*"the bell is close … it was loud"*—and asked her for more information about the bell: "*So give me a volume scale".* Josie gave me a volume scale, and pointed as she provided analogue clock face directions to the bell. I paraphrased her statements, and followed and imitated her point each time.

When Josie turned to face the tuckshop area again, I followed her change in body orientation. I allowed wait time while she and I scanned the large space social text, as the remaining students meandered to class. I saw her looking at the tables. I pointed to the tables and provided a processual think aloud: *"there's lots of tables".* I continued with the elaboration, and tapped the table: *"I am just looking around … there's like about 20 tables here … really long wooden tables".* Josie followed my point to the numerous arrays of tables and visually referenced the table I tapped. Josie and I continued in this space, seated side by side, with reciprocal dialogue for much of the lesson. For every piece of information Josie offered me, I imitated, paraphrased, and elaborated on it by offering her an additional piece

of information, and then explicitly modelled a think aloud about the different features of the tuckshop environment. Through our reciprocal interaction, we gradually added detail to our understanding of the social and environmental space. We continued to scan and focus on the same text. We mirrored each other's body orientation, pointing gestures, and head movements. We cooperatively explored the secondary school environment in a "me to you and you to me" interaction.

Reflection on vignette.

For me, this vignette from the lesson with Josie illustrates the potential of O&M learning and teaching to facilitate "me to you and you to me" (Nielsen, 1990, p. 77) interactions. From my personal experience teachers are well skilled in the principles of integration, differentiation, and knowing their students and the way their students learn. We are skilled observers of our class. I believe that the observation and attention to students and their environment from a non-visual perspective is most pertinent in this vignette.

Reflection on this lesson provided me with a deeper understanding of O&M. O&M learning and teaching for students with VI involves a specific pedagogical cooperative approach, targeted to the individual learning needs of each student, the space the student attends to, and the text most relevant to the student at any point in time, paired with specific language types and functions. In this lesson, my attention was directed not only towards my language, but also to my wait time, reciprocal dialogue and the interaction between Josie and me, and the way these all influenced the productive nature of the lesson. As Tuttle and Tuttle (2000, p. 161) explained, understanding and responding adequately to the needs of students with VI requires grasping "the significance of the interaction between developmental patterns of the individual and the social context within which development occurs". Holbrook and Koenig's (2000) also suggest that modification of instruction for students with VI depends on the functional implication of the student's VI, the level of the student's adaptive skills and the student's personal preferences. For me, Holbrook and Koenig's advice similarly resonates with Bronfenbrenner's (2005) notions of proximal processes. Proximal processes (see Chapter 1) are "enduring forms of interaction in the

immediate environment" (Bronfenbrenner & Evans, 2000, p. 117). In *Making Human Beings Human*, Bronfenbrenner (2005, p. 32) wrote that "the psychological development of the child is enhanced through his [or her] involvement in progressively more complex, enduring patterns of reciprocal contingent interaction".

I further reflected on Nielsen's (1990, p. 62) observations that, during interactions with students with VI, I wish to convince the student that my only "demand is that I want to play in the same room". Nielsen stated that, when interacting with students with VI, the purpose is first to observe the student, learn about the student, and participate in activities and environments that allow the student to take the initiative. Nielsen (1990) constructed a five-phase interaction for students with VI, and labelled the five phases as the techniques of offering, imitation, interaction, sharing the work, and consequence. Initiating this five-phase technique enables a "me to you and you to me" interaction, such as I experienced in this lesson with Josie. Describing this particular interaction as the act of "being together", Nielsen (1990, p. 67) reiterated that the aim of interaction with students with VI is to:

> Give [the student] an opportunity to discover that [they] can take initiatives and that doing so leads to the ability to master something in [their] surroundings. The more [they] are capable of doing, the more [the student] has with which [they] can contribute to interaction with others..

An O&M interaction necessarily includes the practices already accepted for teaching students with VI (see Chapter 1). Accepted practices for teaching students with VI are presented by McLinden et al. (2016) as a way of blending ECC with core curriculum. McLinden et al. (2016, p. 177) termed these practices "access to learning" and "learning to access". However, access to learning practices from an O&M learning and teaching perspective includes access to the relevant spaces and places that are necessary for learning. Saerberg (2010) termed learning spaces and places, the worlds within his acoustics, visual, olfactory, and tactile reach. Further, learning to access the curriculum involves facilitating students' abilities, experiences, and aptitude to interpret their non-visual space. From an O&M learning and teaching perspective, access to learning and learning to

access practices for students with VI may either be constrained, such as in the previous vignette on Annie's lesson, or enabled, as in the vignette featuring my lesson with Josie.

In the lesson with Josie (J210417), together with my interpretations of Nielsen (1990) and Bronfenbrenner and Morris (2006), I affirmed my belief in the importance of offering, imitating, modelling, and reciprocal interaction with students. I consider the language types and functions proposed by Edwards-Groves et al. (2014) of equal value to the Nielsen's, and Bronfenbrenner and Morris' perspectives. Without the ongoing language pattern of reconstruction, elaboration, processual, and feedback, Josie's exploration of the tuckshop area would have lacked reciprocal contingent interaction. Undoubtedly, as stated by Edwards-Groves et al. (2014, p. 137), "a focus on dialogic talk and pedagogy does make a considerable difference to student learning".

Reflective Discussion: Understanding the Practice of O&M Learning and Teaching

Pedagogy (see Chapter 2) is often referred to as the art and science of teaching (DoE publishing as DETE, 2014). However, according to Foran and Olson (2012, p. 177), pedagogy also refers to the "relationship between teachers and students in a place that binds the adult and the child educatively". Friesen et al. (2012, p. 10) argued that any place that draws teachers and students together, and "where teachers and students are absorbed and drawn into an educative experience", is a pedagogical place. Foran and Olson (2012) considered the meaning of a pedagogical place and asked when a space becomes a place in which education occurs. Foran and Olson (2012, p.178) questioned when a "place become[s] pedagogical" and "when and where is teaching pedagogical?".

Place is important to pedagogy. The pedagogical place allows teachers to become attuned to the student in a place that is connected to a genuine process of learning. Like Foran and Olson (2012), I contend that pedagogy should not be limited to a particular place; rather, quality educational and teaching relationships should exude an atmosphere and be felt in any place. According to Foran and Olson (2012), to dwell pedagogically is to be absorbed in the learning experience without interruption or distraction. Specifically, Foran and Olson contend that there exists a relational encounter of pedagogy beyond teaching

practices. As Foran and Olson (2012, p. 190) suggested, teachers need a pedagogical sense not only of the "physical place but also of the relational place and what is pedagogically appropriate for particular students in particular places at particular times".

Teaching approaches for students with VI frequently reference specific pedagogical practices involving "alternative or enhanced modalities of presentation and communication" (Douglas et al., 2009, p. 91). Language and interaction are often referenced (Hatton, Erickson, & Lee, 2010; Mathijs et al., 2014; Nielsen, 1990). According to Vinter et al. (2013, p. 862), language facilitates and reinforces experiences and supports the "perceptual and bodily experience" for students with VI. More specifically, Jaworska-Biskup (2011) determined that teaching practices for students with VI encompassed three notions: that blindness affects the understanding of concepts, that experience is necessary for conceptual understandings, and, most significantly, that language strengthens the information about concepts ascertained through the senses. Language is the connection to world knowledge for all students, through purposeful teacher talk, language of social interaction and broad and deep vocabulary (DoE publishing as DETE, 2014). However, interaction for effective learning and development requires more than dialogic reciprocal exchanges (Bronfenbrenner, 2005).

As argued by Edwards-Groves et al. (2014, p. iv), the "everyday interactions with students in the everyday lives of teachers" are important in extending student learning outcomes. Edwards-Groves et al. claimed that, rather than viewing experiential meaning as an "outcome" of social interaction and activity, experiential meaning is created "through the dialogue itself" (2014, p. iv). Most importantly, these social exchanges and activities comprise sayings, doings, and relating. Essentially, certain dialogic language, activities and relationships in interactions between teachers and students create an intersubjective space (Edwards-Groves et al., 2014).

An intersubjective space is a metaphysical and metaphorical "democratic" learning space where the focus is more on "co-construction and less on transmission" (Edwards-Groves et al., 2014, p.6). When teachers create the conditions of a sematic space, they build

"inclusivity, capacity for thinking and talking, substantive dialogue, and student agency" (Edwards-Groves et al., 2014, p. 6). In such intersubjective space, teachers become *practice architects*,[4] while classroom talk becomes a pedagogical practice and teacher practices enable active participation from the student (Edwards-Groves et al., 2014).

An intersubjective space is an environment that encourages students to be responsible for, and actively construct, their own learning. As one of the three components of an intersubjective space, dialogic language facilitates a pedagogical place where students feel encouraged to talk, and be involved in making approximations in meanings. In this discursive site, understandings develop not only through teacher talk, but also learner talk. Through various sayings, doings, and relatings that are facilitated by the teacher, students take responsibility for their learning by "asking questions, making predictions and inferences and generally being thoughtful and critical about their learning" (Edwards-Groves et al., 2014, p. 6). The findings from studies of dialogic teacher practices indicate that dialogic pedagogies change the dynamics of the interaction (Edwards-Groves et al., 2014). In dialogic pedagogical classrooms, there are increases in student to teacher talk, longer student responses, more questioning from the students, more wait time, and feedback from the teacher directed to information about responses.

Planning for dialogic pedagogy and creating an intersubjective space involves consideration of the activities, physical space, and intended interactions and relationships between the student and teacher. This explicit planning and construction of the intersubjective space is labelled *practice architecture*.[5] Practice architecture includes consideration of the proximity and position of teacher to student, eye gaze, and gestures; as well as the intonation, pragmatics of speech, reciprocal interaction and wait times (Edwards-Groves et al., 2014). O&M learning and teaching is a unique blend of the micro-skills that are

[2] *Note*. From *Classroom talk: Understanding dialogue, pedagogy and practice, (p. iv), by C.* Edwards-Groves, M. Anstey, and G. Bull, Newtown, NSW: Primary English Teaching Association Australia [PETAA]. Copyright 2014 by PETAA. Reprinted or adapted with permission.

[3] *Note*. From *Classroom talk: Understanding dialogue, pedagogy and practice, (p. iv), by C.* Edwards-Groves, M. Anstey, and G. Bull, Newtown, NSW: Primary English Teaching Association Australia [PETAA]. Copyright 2014 by PETAA. Reprinted or adapted with permission.

specifically honed to facilitate students' non-visual interpretation of space. Appropriating Nielsen's (1990) framework, Australian O&M specialists Brannock and Golding (2000) created eight main micro-skills specifically for O&M interactions (see Table 2.3). Within these eight skills are tenets of Saerberg's (2010) notions of space, Edwards-Groves et al. (2014) ideas on the social nature of learning and Bronfenbrenner's (Bronfenbrenner & Morris, 2006) theories on proximal processes and demand characteristics. All these learning and teaching interaction frameworks were summarised by Bronfenbrenner and Morris (2006, p. 796), who suggested that "demand characteristics invite or discourage reactions from the social environment". Specifically, there are certain conditions "for, of, and as" O&M learning for students with VI.

In terms of O&M learning and teaching, practice architecture also incorporates tenets of Bronfenbrenner's (2005) proximal processes, Brannock and Golding's (2000) eight skills for O&M interactions, and Nielsen's (1990) five phases of interaction. After reflecting on the lived experience of O&M learning for Josie, Annie, and Kelly, I discovered essential qualities of O&M pedagogy—termed, practice architecture (Edwards-Groves et al., 2014). More specifically, practice architecture in O&M learning and teaching not only involves consideration of the talk type and feedback, the text and space to which the student is attending, and the disposition, attitude, and temperament of the student as an information gatherer. Thus, analysis of the research data using the lens of Bronfenbrenner and Morris' microsystem has highlighted that O&M learning and teaching is a uniquely crafted pedagogical approach that creates an intersubjective space. O&M learning and teaching is a relational pedagogy that leads students with VI to their O&M learning, thereby allowing them the space to experience it, and the place to explore it.

Chapter 8: The Biosystem.

Understanding O&M Learning and Teaching and Students' Self-agency

Following concerns about the disparity in the learning outcomes and lifelong opportunities for students with and without disabilities (see Chapter 1), the Queensland DoE (publishing as DET, 2017) called for research into teaching practices specifically for students with disabilities. Thus, I undertook this research with the aim of better understanding O&M learning and teaching as a viable option for providing opportunities to facilitate learning for students with VI. To determine ways to help close the gap between students with and without a VI, two research focus areas were identified: to better understand the practice of O&M learning and teaching, and to better understand the alignment of O&M learning and teaching with the Australian Curriculum.

The following data collection methods were employed, using narrative inquiry and autoethnography, both underpinned by hermeneutic phenomenology (see Chapter 4). The data collection methods included recording the O&M lessons of three primary school students with VI over one school semester, semi-structured interviews with a parent and a teacher, a personal diary, and feedback and anecdotal narratives from a panel of O&M specialists. A thematic analysis (see Chapter 4) of the interviews was completed, with validity and trustworthiness checks conducted with a panel of O&M specialists. Drawing on Bronfenbrenner's (1979) theory of ecological development (see Chapter 2), I reflected on the cultural and systemic barriers to full equitable inclusive education practices for students with VI. The data analysis revealed an overt lack of awareness of the influence of VI on development by both the teacher and the parent, and of O&M learning and teaching within schools and the broader cultures, as identified by members of the panel of O&M experts (see Chapter 5).

To better understand the alignment O&M learning and teaching with the Australian Curriculum (see Chapter 6), I completed a thematic analysis of the O&M lessons. The results were presented using autoethnographic vignettes from O&M learning and teaching episodes. The results indicated that O&M learning and teaching overlaps and is embedded

in the content of the Australian Curriculum. In particular, there is alignment with the core learning areas of english and mathematics, and with the Australian Curriculum general capabilities. Although major themes of alignment were identified across the core curriculum, a reflexive review of anecdotal diary notes revealed extenuating circumstances and settings that impede the alignment of O&M learning and teaching with the Australian Curriculum (see Chapter 6).

In the literature review (see Chapter 2), I argued that the majority of O&M research has concentrated on O&M as a set of quantifiable traditional travel skills, with a dearth of research into the pedagogy or practice of O&M learning and teaching. To better understand the practice of O&M learning and teaching, I completed a discourse analysis (see Chapter 4). This included filter taxonomy, pattern matching, lexical density, and mean length of utterance of the O&M lessons. To summarise the results from the discourse analysis (see Chapter 7), I presented two comparative vignettes, titled “You to me … me to you” and “Me to you and you to me” (Nielsen, 1990). I also drew on the subsumer notions previously explored in Chapter 2 to highlight specific conditions for O&M learning and teaching. These subsumer notions included proximal processes (Bronfenbrenner & Morris, 2006); the social nature of learning and dialogic pedagogies (Edwards-Groves et al., 2014); space, place and information-gathering ideas (Brannock & Golding, 2000); and phases of interactions for students with VI (Nielsen, 1990). The lesson vignettes and researcher reflections revealed that O&M learning and teaching is a complex combination of uniquely crafted pedagogical practices. The practice architecture of O&M learning and teaching involves the metacognitive application of these uniquely crafted pedagogical practices within a deeply personalised O&M context.

In this chapter, I continue to interpret and explore O&M learning and teaching as a distinctive pedagogical practice. I achieve this by providing examples to clearly demonstrate that O&M is more than a set of traditional long-cane or independent travel skills. As I continue to expand on the O&M learning and teaching narrative, I examine the unique context of O&M learning and teaching as a potential enabler or constraint of the self-agency

of students with VI. I employ the tenets of bracketing (Tufford & Newman, 2012) from hermeneutic phenomenology to present a series of small O&M lesson vignettes that, on reflection, I believe are central to self-efficacious O&M.

The phenomenological lens enables the exploration of the unique pedagogical place in O&M learning and teaching for the development of self-agency for students with VI. Through examining lived experiences of O&M learning and teaching episodes, and through the textual (re)presentation of the lived experience, I aim to make connections from the practical pedagogy to the relational encounter (Foran & Olson, 2012). In the following vignettes, I bracket the lived experience of the O&M learning and teaching as a pedagogical act, and align these acts with theories on self-agency for students with VI. Each anecdotal lived experience captures a specific pedagogical moment experienced in the O&M learning and teaching episode, blended with "teacher reflections, researcher reflections and significant literacy sources" (Foran & Olson, 2012, p. 180). As I "shift back and forth" (Friesen et al., 2012, p. 25) through a hermeneutic phenomenology lens, I focus on my personal assumptions and then return to view each experience in new ways, at once bracketing and exploiting my preunderstandings as acumen.

I draw on Bronfenbrenner's (1979) conceptualisation of the biosystem in the following vignettes as I illustrate the precarious line between facilitating and impeding, learning and development. According to Bronfenbrenner (2005, p. 5), the biosystem includes the "realm of subjective feelings: for example, anticipations, forebodings, hopes, doubts or personal beliefs" that the student with VI experiences as part of the structure of O&M learning and teaching. Maggie (O&M specialist panel member) summarised the relevance of the biosystem for students with VI, and the potential of the O&M learning and teaching pedagogical act, when she wrote:

> *The VI child's experience and understanding of the world can differ greatly from the educator's expectation of the experience … O&M experiences have the potential to expose specific areas of incomplete development in terms of constructs and strategies, and presents a*

unique opportunity to address multiple areas of cognitive functioning development.

Self-agency

USA professionals in the field of VI have recognised the need to explicitly teach self-agency-related skills and knowhow, such as self-determination, and subsequently self-regulation and self-efficacy, to students with VI (TSBVI, 2018). Thus, unsurprisingly, self-determination is one of the nine components of the ECC for students with VI (Hill, 2015) and has been a focus of research for students with disabilities (Cho, Wehmeyer, & Kingston, 2011). According to Garrin (2014, p. 44), self-determination is "an intrinsic, self-sustaining from of motivation that is influenced by internal stimuli". Alternative definitions of self-determination (Eisenman, 2015; Seabald, 2013; Seo, 2014) include understanding one's abilities and limitations, goal attainment, problem solving, decision making, choice, resource identification, initiative, locus of control, self-advocacy, and self-esteem. For example, in Seabald's (2013) American study of teachers of individuals who were deaf or hard of hearing, 96% of the teachers perceived problem solving to be importantly associated with self-determination. Further, in Seo's (2014) Korean study of special education teachers, decision making was considered the primary subdomain of self-determination. However, the study by Cho et al. (2011) reported that goal setting was rated highly important in self-determination teaching. Eisenman et al. (2015, p. 101) summarised these various constructs of self-determination. They claimed that self-determination refers to a "constellation of behavioural and affective resources (autonomous action, self-regulation, psychological empowerment, and self-realisation) on which an individual can draw to attain personally meaningful goals".

The importance of self-determination for students with VI has been well documented (Ferrell & Sacks, 2006). According to Sacks, Wolffe, and Tierney (1998), sighted students have more autonomy and greater opportunities to make choices than do students with VI. This was later supported by Robinson and Lieberman's (2004) USA study of 54 students with VI, aged eight to 23 years. Robinson and Lieberman found that few students with VI

were given the opportunity to engage in self-determined behaviour. Further, a USA and Canadian study of transition programs for students with VI by Argan, Hong, and Blankenship (2007) identified that greater than 50% of teachers spent "little or no time" discussing issues of self-determination with students with VI. Of particular relevance to students with VI is Wehmeyer's (1999) functional model of self-determination. In this model, Wehmeyer (1999) stresses the importance of providing opportunities for students with disabilities to practice elements of self-determination through facilitation and engagement within the environment (i.e., people and places) and experiences, such as in an O&M learning and teaching interaction. More importantly for O&M learning and teaching, Palmer et al. (2012, p. 41) defined engagement as "the amount of time children spend interacting with their environment in a developmentally and contextually appropriate manner".

Explicitly developing foundational self-determination skills is important for later life outcomes for students with disabilities (Palmer et al., 2012) because self-determination has been linked to increases in quality of life (AFB, 2012; Hart & Brehm, 2013), school success (Rowe, Alverson, et al., 2015) and post-school opportunities and outcomes (Argan et al., 2007; Seabald, 2013). As stated by Ankeny and Lehmann (2011, p. 79), the "construct of self-determination is an exemplary educational practice that improves the post school outcomes of students with disabilities". Specifically, Wehmeyer (2011, p. 213) maintained that students who leave school as more "self-determined young people achieve more positive employment and independent living outcomes and experience a higher quality of life".

The effect of the O&M learning and teaching interaction on the levels of self-determination, self-regulation, and self-efficacy for students with VI is considered in binary (enabling or constraining) terms (Lyons, 2012) in the following vignettes. Perry and Collier (2018, p. 35) claimed that "we know something in part by knowing what it is not". For example, in the following O&M lesson excerpts, the development of self-agency is impeded by the O&M interaction. Retrospectively, the distinctiveness of the O&M learning and teaching interaction affords multiple opportunities when combined with practice architecture

to facilitate self-agency skills in students with VI. Thus, O&M learning and teaching is one plausible platform for explicitly teaching and developing self-determination skills for students with VI.

"I don't have the best memory" (Kelly, Year 3 student with VI).

The influence of interactions on the social development of young people is a constant reminder of the role of families, carers, and teachers in the development of the child. I have observed new parents or new teachers, feel overwhelmed by the enormity of their responsibility in ensuring positive interactions and life experiences for their child or student. We agonise over the little mistakes, choices, and actions in our interactions with the children. However, our best intentions are always the nurturing and wellbeing of the child. Sometimes even our best intentions can unwittingly undermine the development of a student's self-concept and subsequent self-advocacy and self-efficacy.

Like all children, students with VI constantly revise "their self-concepts according to the reflections they observe in others or to their revised measure of their own competence" (Tuttle & Tuttle, 2000, p. 162). I observed a shift in Kelly's self-concept when our O&M lesson was interrupted by a teacher (Tracey). Kelly's open discussion and positive self-concept about her ability to gather and recall information was altered by the interaction with Tracey. Kelly's measure of her own competence and motivation was also altered as Tracey persisted in talking about Kelly in the third person and speaking on Kelly's behalf.

Kelly and I were standing together at the side of the road outside of her school. We were both oriented to the environmental text of the roadway and surrounding humanmade features, and both visually scanning to the small environmental space that was within one metre of where we stood. Kelly had been thinking aloud, openly discussing her prior knowledge of humanmade features, and recalling information about roadways and intersections. We were engaged in a dialogic and reciprocal discussion.

Tracey arrived and greeted us: *"Good morning, how are we all?"*. Kelly had been fully engaged and animated prior to the interruption, yet immediately looked down at the ground and did not offer a response. Although Tracey's question was directed to "*all"* of us, she had

oriented herself to me, thereby non-verbally indicating that she was interacting only with me, and effectively ignoring Kelly. Sadly, it appeared to me, and perhaps also to Kelly, that Tracey was making the assumption that Kelly's VI simultaneously affected her cognitive ability. I considered that, in these few seconds, Tracey communicated to Kelly that Kelly lacked the capacity to interact and respond directly to sighted others. Tracey portrayed a commonly observed disrespectful manner of interacting with a person with VI (Willings, 2017). For students with VI, knowledge of their rights, knowledge of their self, and advising sighted others of these rights is a component of self-advocacy (Willings, 2018) and subsequently self-determination (Test, Fowler, Wood, Brewer, & Eddy, 2005).

Tracey, still oriented towards me, continued with a closed question to Kelly: "*Are you showing Miss some of the signs we found?".* Kelly continued to look down and answered, "*Yes".* I tried to bring Kelly back into the interaction by sharing with Tracey the topic Kelly and I had been discussing before Tracey's arrival: "*We started to have a look".* However, Tracey interrupted me, continued looking only at me, talked about Kelly in the third person, and spoke on Kelly's behalf as she said, "*She was very excited".* Kelly, lacking any self-advocacy skills, and without control of the dialogue, continued to look at the ground. Perhaps there were other reasons for Kelly's disengagement with the conversation; however, at this time, I felt great empathy for her. The expression on Kelly's face to me reflected resignation.

Self-advocacy incorporates both metacognitive and self-efficacy skills, and is considered a subset of self-determination (Szymanski, 2015). Self-advocacy skills include asking for help, school engagement, and psychological empowerment (Eisenman et al., 2015). According to Szymanski (2015), self-advocacy can be specifically defined as a skill that assists students to speak for themselves and stand up for their own rights. Szymanski (2015, p. 159) argued that students with disabilities need to see that they can "change their lives and that they have control". For instance, when students with VI perceive that they can successfully understand and use information, and perceive themselves as "information gatherers", they develop a "sense of control of their educational activities" (Szymanski, 2015,

p. 161). Kelly's perception of herself as an information gatherer continued to dwindle as Tracey interacted with her.

I again tried to redirect the conversation to Kelly by turning to her, pointing at the school and saying, "*I remember that we looked at one sign … the number 11".* Kelly immediately lifted her gaze, followed my point, and added, "*Yep … the classroom sign … that was block 11 near my classroom".* Kelly and I commenced walking side by side, on the footpath outside the school. I asked Kelly what other signs she had intended to show me. She replied, *"I'm thinking … maybe … some signs out here … I think".* Tracey, who was walking behind us, interrupted again and, without identifying to Kelly that she was talking to her, said, "*Do you remember which sign was your favourite?".* Kelly stopped walking, looked down and said, "*Um".* Tracey continued, "*I remember which one".* Tracey's statement that she "*remembered"* communicated to me, and perhaps to Kelly, a perceived deficiency in Kelly's memory. Kelly kept her head down and provided a self-depreciating think aloud: "*Um, I don't have the best memory".*

This vignette with Kelly highlights that the environment, systems, culture and "phenomenological manner in which students perceive their experiences" (Joet & Usher, 2011, p. 658) affect their self-efficacy levels. The effect of perceived experiences on self-efficacy is supported by Klassen and Usher (2015, p. 29), who suggested that "self-efficacy beliefs are not formed in social isolation but are influenced by the cultural forces that shape our understandings of how to learn, teach, act, think, and live". Likewise, Bandura (1993) suggested that students' perceived self-efficacy is affected by the beliefs of their teachers and manifestations at the greater system level, and maintained that students' perceived beliefs are socially constructed. O&M learning and teaching interactions, which frequently endure over the lifetime of the student with VI, are important to students' self-efficacy and self-esteem. The effect of the unique pedagogical space of O&M learning and teaching on students' self-agency is further portrayed in the following vignette with Annie.

“All in all, it’s just another brick in the wall”

(Ezrin, Gilmour, Guthrie, & Waters, 1979)

In 1979, Pink Floyd recorded the hit song “Another Brick in the Wall” (Ezrin et al., 1979). Originally a protest song about rigid schooling and abusive teachers, “Another Brick in the Wall” is associated with students portrayed as clones in “hegemonic groups” (Méndez, 2017, p. 369) and teachers merely as tools upholding an oppressive society (Méndez, 2017). The song is most remembered by the three-part chorus sung by a school choir, which rises from sadness to protest to anger, while, in the background, a teacher repeatedly and with increasing agitation shouts at the children, “Wrong! Do it again!”.

In the song, the main character “Pink” figuratively constructs a wall, thereby isolating himself from the rest of society and the negativity to which he is constantly exposed. The song implies that not only does Pink dismiss teachers and people in his life as just another brick in his wall, but that teachers also perceive students as a homogenous group of bricks in the wall. “Another Brick in the Wall” aligns teaching to a process of teaching and learning that is “predetermined, pre-paced, and pre-structured”, with little room for “originality or creativity on the part of teachers or students”, and with “specific, correct answers elicited to specific, direct questions” (Rubin, 2011, p. 98).

During an O&M learning and teaching episode that a class teacher (Grant) shared with Annie, I was reminded of the infamous words “*all and all it’s just another brick in the wall*” from Pink Floyd’s rock opera. For me, the words from Pink Floyd’s song (Ezrin et al., 1979) metaphysically reflected the pedagogical interaction between Annie and Grant, while Annie and Grant’s exploration of the school brick wall became the metaphorical representation of the interaction. As the interaction continued, I observed the dampening of Annie’s “sense of control” (Szymanski, 2015, p. 161) in the educational activity and a change to her perception of herself as an information gatherer.

Annie and I had finished our O&M lesson; however, she was keen to show me the incoming rain clouds from high up on a nearby brick wall. This was not surprising, since we were only one week out from experiencing a cyclone in the region, and I saw this as a great

opportunity to develop some understanding for Annie of her functional vision. However, after climbing the wall and looking at the clouds, Annie decided the wall was too high and she needed to get down. I modelled a think-aloud process as I gathered information about the depth of the wall. Annie eventually jumped down from the wall and began to count the bricks in the wall using one-to-one referencing, and pointing to each brick as she enthusiastically counted, "*One, two, three blocks!".*

We were joined at this point by another teacher (Grant) who moved closer to Annie, and emphatically touched each brick as he counted, "*One, two, three! Are there anymore?".* Annie pointed to the same bricks she had previously counted, and less enthusiastically replied, "*One, two, three blocks".* Grant enthusiastically touched each brick again, and emphatically stated, "*See! Look! One, two, three, and look above here!".* Grant touched the brick wall higher up and demanded, "*Is there anymore above the third one? Touch them! Touch them! Touch them!".* Annie pointed to the bricks that Grant was touching and counted, "*One, two".* Grant interrupted Annie and continued firmly touching the next brick as he counted for Annie, "*Three!".*

Annie kept her head down and did not attend to the brick that Grant was touching or to Grant as she continued counting another set of bricks: "*Three, four".* Grant determinedly tapped another brick hidden beneath the edge of the wall, and then stepped back to face Annie, declaring, "*Four! See, it [the brick] is hiding underneath this ledge!".* Annie continued to count the bricks in her location. She doggedly missed the so-called hidden brick and, disengaging and losing control of her exploration experience, began tapping random bricks, and counting rapidly and in succession, without regard for the beginning numeracy concept of one-to-one correspondence (ACARA, 2018a): "*One, two, three, four, five, one, two, three, four, five, one, two, three, four, five".*

Grant persisted in instructing Annie to "*Go down the other end, and see if there's still five down the other end!"*, while he remained stationary at the start of the brick wall. The other end of the brick wall was outside Annie's functional vision range of one metre, and consequently her comfort zone and exploration space. Annie moved away from Grant

towards the other end of the brick wall, but did not go right to the end because her functional vision limited her perspective of the end. The wall was much higher at this point, with a different arrangement of bricks. Annie dutifully bent over and counted in a small voice, "*One"*. Grant yelled out to her, "*Further down! Right down the end! Is there still five?".* Once again, Annie randomly pointed at bricks: "*One, two, three".*

Grant was still not satisfied that Annie had followed his instructions, and refused to move away from a teaching pedagogy that is "predetermined, pre-paced, and pre-structured" (Rubin, 2011, p. 98). He yelled out, "*No! That [brick wall] changed. Come back!".* I was struck by the tone in Grant's voice, as well as his nonverbal body language and persistence that there was only one way of counting, that counting was the only way of exploring the brick wall, and that Annie continued to be interested in exploring the bricks in the wall. At that time, and retrospectively as I revisit this moment from my journal entries, the teacher's voice from Pink Floyd's (Ezrin et al., 1979) "Another Brick in the Wall" resounds in my mind. As in the song, I move from sadness to protest to anger as I relive Annie disengaging from her O&M learning.

Annie continued counting random bricks along the wall: "*Four, five".* Grant remained outside of Annie's visual function range, exaggeratedly pointing to the brick nearest him and firmly instructing Annie to "*Come back to the ones that are the same".* Then, continuing to demand and control Annie's exploration experience, Grant yelled at her, "*Look! Look! This one is different! Look at these ones! Start again! One!".* Even now, I close my eyes and sigh as I reflect on how closely Grant's tone of voice echoes that of the teacher in Pink Floyd's "Another Brick in the Wall". Annie continued counting and pointing at random bricks along the wall as she walked back towards Grant, having never reached the end. She walked around to the other side of the wall and continued counting, "*Two, three, four, five, six".* Grant remained outside of Annie's visual function range, touched the bricks on his side and loudly and insistently counted, "*One! Two! Three! Four!".* Like the children in the song, I internally screamed, *"Teachers leave them kids alone. Hey! Teachers! Leave them kids*

alone!" (Ezrin et al., 1979, stanza 2). I interrupted Grant, finished the lesson, and redirected Annie to return to her class.

Similarly to Pink Floyd's "Another Brick in the Wall", in 1979, Supertramp released "The Logical Song" (Songfacts, 2018) as a protest about education. As I reflected on the O&M lesson that Grant shared with Annie, I was reminded of the lyrics from "The Logical Song": "*won't you please, please tell me what we've learned"* (Songfacts, 2018, para. 2). Retrospectively, I consider that neither Annie nor I would be able to define the learning undertaken during the O&M lesson shared with Grant. A hidden curriculum (Furnham & Stacey, 1991)—or, as Nespor (1994) argued, a "hidden persuasion of implicit pedagogy"—underpinned Grant's O&M lesson with Annie. For Annie, the O&M lesson became a depreciating spiral of self-agency and a whittling away of self-advocacy, determination, concept, and efficacy.

Self-efficacy is variously conceptualised as judgement about one's capabilities, beliefs and perceptions of personal competence, and performance mediation (Anjum, 2006; Tella, 2011). According to Klassen and Usher (2015), self-efficacy is the foundation for students' motivation. Similarly, Garrin (2014, p. 44) argued that self-efficacy is linked to students' achievement outcomes, and claimed that "mastery and competence beliefs are directly linked to self-efficacy perceptions". Of more relevance for students with VI is Klassen and Usher's (2015, p. 6) claim that self-efficacy influences "self-regulatory processes such as goal setting, self-monitoring, self-evaluation, and strategy use".

Students' efficacy beliefs are constructed by verbal modelling of cognitive strategies, proximal goal setting, ability and effort attributional feedback, positive incentives, and self-verbalisation of strategies (Bandura, 1993). In a recent American study, Crudden, O'Mally, and Antonelli (2016) investigated the social problem-solving skills and transportation self-efficacy of 54 adults with VI. Crudden et al. (2016) suggested that problem-solving strategies and self-efficacy are important personal attributes that enable the person with VI to identify possible transportation and travel options. They hypothesised that people with low social problem solving and low self-efficacy would require assistance with

their transportation needs. However, Crudden et al. (2016) determined that, because of the complexity of travel without vision, people with VI require problem-solving and self-efficacy skills that are “significantly higher than the normal range” (p. 59).

In contrast, self-regulation is considered a sub-construct of self-determination (Cho et al., 2011; Palmer et al., 2012). For Anjum (2006), self-regulation is not only a determinant of motivation, but a component of self-efficacy and self-esteem. Originating from the theoretical works of Bandura (1977) and Leventhal et al. (1998) in the early 1970s and 1980s, self-regulation includes such constructs as standards, values, motivation, coping procedures, goal setting, problem solving, and willpower. Self-regulated learning includes selecting appropriate strategies, identifying current knowledge, correcting misconceptions and evaluating cognitive strategies (Bandura, 1993). Self-regulation is identified as one of 12 metacognitive learning and feedback strategies (Argyropoulos & Kanari, 2015; Harris et al., 2015).

In a study of the application of self-regulation in language and mathematics among Greek students with VI, Argyropoulos et al. (2012) determined that students with VI portrayed a limited range of metacognitive self-regulation and feedback strategies, organisational skills and adaptability to the demands of different tasks, and lacked flexibility in adopting alternative strategies across tasks. Argyropoulos et al. (2012) found that students with VI most often used a single self-regulation strategy, irrespective of the field or academic subject. For Annie, the O&M learning experience in this instance constrained her self-agency skills, even though there were many opportunities for attention to self-agency development. The next vignette with Josie similarly displays the potential for the deeply personalised context of O&M learning and teaching to be a potential platform for the development of self-agency.

“I’m so smart” (Josie, Year 6 student with VI).

Locus of control, motivation, self-esteem, self-concept, and self-awareness are common threads within the areas of self-directed and self-determined learning for students with VI (Ankeny & Lehmann, 2011; Papadopoulos et al., 2013). In 2005, Lopez-Justica, Martinez,

and Medina (2005) examined the differences in self-concept between Spanish children with congenital low vision and their sighted peers, and identified that children with VI scored lower self-concept in aspects of their relationships with classmates than did their sighted peers. In an Israeli study on self-concept and adjustment to blindness, Lifshitz, Hen, and Weisse (2007) found similar self-concept profiles for adults with VI and their sighted peers. In addition, they reflected that attitudes and acceptance towards blindness further affected the self-esteem, locus of control, and motivation of adults with VI. Likewise, in a later Macedonian study investigating the difference between adults with VI and their sighted peers, Papadopoulos et al. (2013) found that sighted adults showed a higher score on the self-esteem scale than did individuals with low vision or blindness. According to Tuttle and Tuttle (2000, p. 161), people with VI may have "lower self-esteem due to a disproportionate number of negative reflections they may experience compared with their nondisabled peers".

Josie often provided snippets of conversation that illustrated her labile self-esteem and limited self-determination skills. When discussing her concerns about entering secondary school, she asked what she should do "*if the teacher didn't believe she [Josie] had a VI".* During another lesson, Josie asked what she should do *"if the teacher wrote on the board and she [Josie] couldn't see the work"*, and that she *"always got in trouble for not finishing her work when she couldn't see it".* When advised to discuss her VI with her new school peers, Josie stated that she had felt frustrated in the past when she tried to do that and her peers would "*wave fingers in her face, saying, 'how many fingers, how many fingers?'".* Another time when Josie commented on her progress in O&M, she perceived success as not having *"gotten lost yet",* and that the only way she could improve was "*to take note of everything".*

During one of our lessons, Josie made numerous self-depreciating comments. She was having trouble typing on the iPad because of the print size, and she exclaimed that she "*couldn't even get it [the typing] right"*, which indicated to me that she perceived typing as a task that she should have been able to achieve, and that it was her ineptitude, rather than her VI, that resulted in her typing difficulties. Shortly afterwards, Josie believed that she had

deleted all the work. She pretended to laugh/cry and appeared to mirror previously heard adult feedback as she admonished herself by saying, "*I feel so disappointed in myself".* When she attempted to read her writing back, she accepted her poor visual access, instead of advocating for an adjustment or assistance. She stated, *"It's fine … plus, I can mostly see where it comes from".* Josie believed that seeing only "*some of the bits"* was acceptable access to the printed material. She talked about being "*just*" able to see the letters on buildings, and, when she photographed a building, she explained her photography as *"like, I tried to get all the stuff in".* As I was explaining the purpose of a room in the library dedicated to quiet independent study, and available for students to catch up on work, Josie interrupted me by claiming, "*like, that would be me. I'd have to work, like, on everything because I never get anything finished".* When we spoke about walking to secondary school when she was older, Josie again belittled herself by saying she would not be capable of walking to school because she was "*too lazy".*

Self-advocacy is defined by four main components (Test et al., 2005): knowledge of self, knowledge of rights, communication skills, and leadership skills. Students with VI need to understand their VI to effectively communicate and advocate for their needs and explain their visual restrictions (Willings, 2018). According to Willings (2018), students with VI exhibit self-advocacy when they seek help, seek adaptations, and seek accommodations, such as asking for academic materials to match personal needs, expressing preferences for learning materials or asking for help where needed. For example, Josie did not self-advocate when she accepted poor access to print or blamed her own capacity and aptitude for inaccuracies or missed information, rather than understanding or perhaps accepting her visual restrictions. Every lesson with Josie required me to plough through layers of self-depreciating comments before Josie viewed herself as a meaningful contributor to our explorations. In one lesson, we were exploring a new area of the school, and Josie risked making a prediction about the purpose of the building. However, her comment of *"I'm so smart*", followed by nervous laughter, seemed to lack any conviction.

Reflective Discussion. Student Self-agency and O&M Learning and Teaching.

Deverell, Bentley, Ayton, Delany, and Keeffe (2015) argued that measures of O&M learning and teaching need to reflect the effect of O&M on the everyday experiences of students with VI. The physical action of mobility is undoubtedly easier to observe than the cognitive processes involved in orientation. While traditional O&M performance indicators, such as travel speed and long-cane contact tallies, provide a more tangible assessment of O&M learning and teaching, they fail to provide evidence of the "micro elements" (Deverell et al., 2015, p. 75) of O&M learning and teaching that may affect students' overall learning outcomes. Outcomes of O&M learning and teaching for students with VI include changes to the cognitive and social processes involved in self-efficacious travel. Deverell et al. (2015, p. 78) claimed that self-agency constructs—such as decision making, sensory integration, and self-education—are part of the O&M learning and teaching "process". Moreover, Deverell et al. (2015) suggested that there has been a shift in the O&M profession in recent years, from independence to self-agency as a measure of O&M competency.

The constructs of self-agency are important for equitable learning outcomes for students with VI, and are deemed highly generalisable to educational, academic, vocational and health domains (Ryan & Deci, 2000; Weymeyer, 2012). For instance, Rowe, Mazzotti, and Sinclair (2015, p. 131) aligned the academic curriculum achievement standards with "anchor standards" that addressed to Rowe et al. (2015, p. 131), self-agency skills can be "easily taught and included as part of existing curricula in everyday teaching", such as in an O&M learning and teaching episode. In addition, Deverell et al. (2015) contended that the micro-elements and unique pedagogical place of O&M learning and teaching may facilitate the development of self-agency for students with VI. Therefore, aligning O&M with the curriculum (see Chapter 6) and applying the tenets of practice architecture (see Chapter 7) may add to the opportunities for students with VI to develop self-agency skills.

Previously (see Chapter 6), I presented the results on the alignment of O&M learning and teaching with the Australian Curriculum, and particularly with the general capabilities of literacy, numeracy, PSC, and CCT. A further examination of the general capabilities

highlights equal alignment with self-agency skills (see Table 8.1). For example, an elaboration in the Australian Curriculum general capabilities (ACARA, 2017b) states that students recognise personal qualities and achievements, and understand themselves as learners. These skills are similarly described across the self-agency constructs of self-determination (such as understanding one's abilities and limitations), self-regulation (such as identifying current knowledge) and metacognitive aspects of self-efficacy (such as when executing plans). In addition, several areas of self-agency are visible in the CCT strand of the Australian Curriculum general capabilities (ACARA, 2017b), such as metacognition; problem solving; decision-making skills; and analysing, synthesising, and evaluating reasoning.

Table 8.1. Aligning Australian Curriculum General Capabilities with Self-agency Constructs.

Australian Curriculum General Capabilities		**Equivalent Self-determination constructs**	**Equivalent Self-regulation constructs**	**Equivalent Self-efficacy constructs**
Personal and social capabilities	Self-awareness Self-management Social awareness Social management	Understanding one's abilities and limitations. Psychological empowerment. Self-realisation. Goal attainment. Resource identification. Initiative Expressing and making choices. Problem solving Decision making	Identifying current knowledge. Selecting appropriate strategies. Evaluating cognitive strategies. Correcting misconceptions.	Organise and apply plans to achieve a certain task.
Critical and Creative thinking	Identifying Generating ideas Reflecting on thinking Analysing Synthesising Evaluating			

The overarching aim of my research was to explore O&M learning and teaching as one plausible option to facilitate the learning outcomes for students with VI. Drawing on the

theory of ecological development, changing the learning outcomes for students with VI requires sociocultural change across and within all six ecological systems (Bronfenbrenner, 2005). According to Astin (1996), self-agency concepts—such as self-determination, self-efficacy, self-regulation, self-esteem, and self-advocacy—are core constructs of social change. Stated another way, the internalisation of self-agency constructs leads to changes in individual, group, and societal values. For Garrin (2014, p. 47), the potential for social change is developed when self-regulated behaviours—such as motivation and resilience—are internalised, and when students acknowledge their "personal strengths and limitations".

The Australian Curriculum's (ACARA, 2017b) desirable attributes for twenty-first-century learners, drawn from the Melbourne Declaration and outlined as the general capabilities, are framed around self-agency constructs (MCEETYA, 2008). Further, Deverell et al. (2015) argued that the micro-elements of O&M learning and teaching facilitate the development of self-agency metacognitive strategies for students with VI, and claimed that social change is forged through the knowledge, skills and attributes of self-agency (Garrin, 2014). O&M learning and teaching is complex (Deverell et al., 2015) and is manifested differently according to each student's unique functional vision abilities and consequent interactions within and across the ecological systems. Through alignment with the core curricula, and through alignment with self-referent cognitive strategies, O&M learning and teaching may be pivotal to social change for students with VI.

Throughout this and the previous results chapters, I have presented the findings as applied to the different systems of Bronfenbrenner's (2005) ecological model. In Chapter 5, I examined the data on the broad culture of O&M, VI, and education. The feedback from the panel of O&M specialists and the parent and teacher interviews highlighted a lack of awareness of the influence of VI on learning, and the role of O&M in learning and development for students with VI. The findings from the parent and teacher interviews also highlighted the effect of the current educational objectives and parameters on learning and teaching for Queensland students with VI in this present study.

In Chapter 6, I presented the data from the thematic analysis of the O&M learning and teaching lessons, and the alignment of O&M with the Australian Curriculum. In particular, I addressed data relating to the elaborations of the Australian Curriculum general capabilities, and demonstrated the many and varied ways that O&M learning and teaching may be aligned with core curricula. I employed journal entries and field notes to identify the difficulties in aligning formal O&M, particularly with the senior phase of learning in the Australian Curriculum.

Chapter 7 outlined the data related to the language and pedagogy of O&M learning and teaching. I selected two lessons and presented these as vignettes to explore and portray the distinctive pedagogical practices of O&M learning and teaching. These vignettes exemplified the practice architecture of O&M teaching, which involves targeted and planned attention to the language, space, and text that is most relevant in facilitating the student's information gathering at any point in time.

Finally, in Chapter 8, in a further three vignettes, I provided data on the inner system, biosystem, and the effect of other people and other systems on the student with VI. Using these vignettes, I portrayed the way that interactions with other people may easily enable or constrain self-efficacious O&M. The results have exemplified the myriad of layers involved with O&M learning and teaching. I harness the understandings from these results to more broadly discuss O&M learning and teaching for students with VI.

Chapter 9: Discussion

This final chapter comprises a brief summary of the study, as well as the recommendations and conclusions derived from the research. In particular, I revisit the study's purpose and aim, and restate the major results. I then explain the meaning and importance of these results and relate them to previous research. Following this, I acknowledge the limitations and strengths of the research, and consider the implications of the findings for practice. A practical outcome of the research is the formulation of an ontogenetic model of O&M learning and teaching. The details of this model are provided, alongside a five-part typology for O&M interactions. This is followed by recommendations for future research and an autoethnographic reflection of O&M and VI. I follow this reflection with a conclusion calling for further research into the distinctive professional field of O&M learning and teaching.

Recapitulation of Research Purpose and Results

As stated in Chapter 1, the aim of this research was to better understand the practice of O&M learning and teaching within the primary school setting of the Queensland DoE. To investigate O&M as a contemporary pedagogical practice and as a viable option to improve the learning outcomes for students with VI, the research aim was divided into two research focus areas. The first focus was to better understand the practice of O&M in the Queensland DoE for primary school students with VI, and the second focus was to better understand the alignment of O&M learning and teaching with the Australian Curriculum. To explore these focus areas, I examined the O&M learning of three female primary school–aged students from North and Far North Queensland over one school semester (two terms) within the Queensland DoE, Queensland, Australia. I also interviewed one parent and one class teacher to better understand perceptions of O&M. To enable a more in-depth reflection, I also engaged in professional dialogue with an O&M specialist panel about O&M lessons, practices, and beliefs.

The purpose of this research was to better understand the practice and alignment of O&M learning and teaching in the Queensland DoE for primary school students with VI. The

results suggest that there is much potential for the alignment of O&M learning and teaching with the Australian Curriculum, particularly with the primary school curriculum. However, the results also confirm that, among the two non-expert participants (parent and teacher) in the study, there was a substantial lack of awareness of the influence of VI on learning and teaching, and of the potential contribution of O&M to learning and teaching. This lack of awareness similarly meant that the teacher, parent, and students were unaware of the alignment of O&M with the Australian Curriculum. Several explicit O&M learning and teaching pedagogies were identified. These included O&M teacher attention to dialogic language and feedback, wait times in interactions, and shared attention to spatial and contextual environments within the O&M lesson. I appropriated the term "practice architecture" to encompass O&M pedagogies, which emerged from my analysis of O&M learning and teaching episodes.

Relationship of My Results to Previous Research

The student participants indicated a clear learning preference for O&M learning and teaching that facilitated self-efficacious information gathering. Although the degree of influence varied, the three students demonstrated engagement and self-determined information gathering and interpretation of their non-visual world using the crafted practice architecture of O&M learning and teaching. These results align with my previous research (Blake, 2015) and research from other O&M specialist researchers, such as Brannock and Golding (2000) and Deverell et al. (2015). My research also reflects previous studies from the field of VI (Khochen, 2016; Nielsen, 1990), and from within education (Edwards-Groves et al., 2014; Hattie & Yates, 2014). In addition, the results suggesting alignment of O&M learning and teaching with the Australian Curriculum are consistent with previous research by Scott (2015) and inclusive education researchers, such as McLinden et al. (2016).

Limitations and Problems Arising During of the Research

> All the world's a stage,
>
> And all the men and women merely players;
>
> They have their exits and their entrances,
>
> And one man in his time plays many parts
>
> (Shakespeare, trans, 1941, 1.7, spoken by Jacques)

The above stanza commencing from the play *As You Like It* was written by Shakespeare (Shakespeare, trans, 1941) as a melancholic monologue on the seven stages of life, from birth to death. In this scene, Shakespeare compares life with the stage, suggesting the changing roles and responsibilities experienced as a person progresses through the different stages of his or her life. Shakespeare's character laments that life is fleeting and has no purpose, and that a person enters life with a prescribed set of fortunes and fates.

I draw on Shakespeare's symbolism as I reflect on the many roles that I played throughout my research—O&M specialist, autoethnographer, insider researcher, and teacher. As I played my "many parts" (Shakespeare, 1941, Act II, Scene VII), I reflected on Shakespeare's lament on life not as melancholic, but as an epiphany. While I may have entered this research stage with a singular mindset, I exit with personal wealth because of the interactions encountered with the participants throughout the research. As equally as I played my part, the students, teachers, and panel members had their many exits and entrances; however, each of their exits left me the gift of greater insight.

Navigating the many parts I played as an insider researcher was fraught with difficulties. Kirpitchenko and Voloder (2014, p. 8) argued that the insider researcher can be "an insider at one moment and an outsider at another", with a blurred line between the personal and professional. As I continued to be the O&M teacher of the students with VI in my study, I struggled to find the boundary between my research self-reflexivity and my professional objective self. Similarly to Voloder (2008), I was confronted by the intersection between my private and professional life. I believe that my performance of my "exits and entrances" was ineptly performed, with a blurring of my many roles a key feature of the

research. I was the Queensland DoE employee and specialist, who was responsible for writing professional factual reports, providing advice, building capability with staff and parents, and necessarily distancing myself from the research situation, and stepping back to provide an objective report (Kirpitchenko & Voloder, 2014). However, I was also the self-reflecting insider researcher, necessarily exposing my personal assumptions, biases, beliefs and expectations around O&M learning and teaching. My professional reports became a blend of my many roles, as did my practice. For example, my lessons continually morphed as I subconsciously embedded the new knowledge and understanding emerging through the data collection and introspection. During the lessons, I inadvertently responded to changes in student attention or environment because of the reflexive understandings gleaned from the research data. Moreover, I struggled with labelling myself, with my many parts—uncertain if I was "teacher", "researcher" or "I" at any given moment on the research stage.

Each of my many parts, and my many exits and entrances, required constant ethical attention. As an insider researcher, I inescapably encountered ethical conundrums because of the familiarity of my relationships with the participants, who were colleagues, friends, parents, and students. I was aware of the possibility that the O&M specialists who were members of the panel were involved primarily out of a sense of personal obligation to me, and I subsequently felt enormous responsibility to not be an encumbrance on their time. My embarrassment and discomfort were exacerbated when one of the panel members, a long-time close friend, withdrew from the research citing time and health obligations. In addition, similar to Kirpitchenko and Voloder (2014, p. 9), I experienced "stronger imperative to make positive contributions" through my work, and likewise experienced frequent "community pressure to do so".

To address the questions of insider bias and validity, I drew on the advice of Costley (2010). I attended carefully to feedback from participants, and demonstrated critical appraisal of my own work through ongoing professional dialogue with my peers and by undertaking detailed self-reflection, through subscription to Descartes's (1637) four premises of thought. I identified these four premises as avoiding precipitancy and prejudice, dividing

thoughts into as many parts as possible, ascending little by little to the knowledge and understandings, and making complete and detailed accounts (Descartes, 1637). Further, I specifically and actively sought disconfirming evidence in an attempt to consider alternative explanations for the results (Booth et al., 2013).

The O&M specialist panel provided a measure of transparency and, through their own lived experiences, a degree of credibility, dependability, and confirmability of the data. Therefore, in the final round of the panel response, I asked the O&M specialist panel members to consider the credibility, dependability, transferability, and confirmability of the thematic data. The following paragraph presents the highly distilled data offered by the O&M specialist panel in response to the questions on credibility and dependability of the present research. I present the data in two themes, the credibility of the data collection and data analysis methods used in my research, and the dependability of the data related to better understanding O&M learning and teaching.

Reginald (panel member) suggested that analysing *"other communications … with the teacher and the parent"* and that *"an electronic survey"* to teachers and parents may have aided understandings and awareness of O&M learning and teaching. Further, Lee (panel member) proposed that video-recording the interviews and lessons would have conveyed *"other messages … more non-verbal in nature".* Lee offered a number of suggestions around the dependability of data analysis. He specifically referred to acknowledging *"the where and what of power relations in the interviews"* and the "*particular cultural slant"* of interviews. In his discussions on the dependability of the data, he suggested further clarity around a "*process that [could] be repeated and enduring [and that] allows for dependability".* He added that having *"repeating patterns discovered"* could also assist the dependability of data. Jenny (panel member) supplemented the conversation on the reliability and transferability of data when she referenced the limited numbers of teacher and parent participants. She stated, "*two people's feedback as a measure of your practice … is not the whole picture".* This observation is accurate and, throughout this thesis, I have been

careful not to make generalisations based on these data. Lee also raised the interesting and noteworthy idea of considering binary data. He asserted that there is "*an ability to have a binary of data. That information can have an opposite potential … which would alter the meaning".* Following Lee's advice, I have once again been careful not to read too much into the analysis of the data.

Strengths of the Research

Playing the role of the insider researcher provided a unique opportunity to uncover tacit knowledge of O&M and offer this information to *sighted outsiders*. As Lizzie (panel member) explained, sighted outsiders (see Chapter 4) are people who do not understand the non-visual world. Prior to this research, I only had tacit knowledge about the alignment of O&M learning and teaching with the core academic curricula. Further, only one study (Scott, 2015) had tentatively investigated the alignment of O&M with the Australian Curriculum. To the best of my knowledge, no previous studies had investigated the practice of O&M learning and teaching in the DoE in Queensland. Moreover, preceding this current project, the review of the literature suggested to me that investigation into O&M predominantly focused on the formal and traditional rhetoric of O&M learning and teaching (Agarwal, Iyer, Naidu, & Rodrigues, 2015; Arslantekin & Ve Bilim, 2015; Cmar, 2015b; Emerson & McCarthy, 2014). There was no precedence found in the O&M field of the detailed discourse analysis of O&M specialists as practice architects, as completed in this study.

The qualitative methodology and methods used in this research gave the participants a voice. A synthesis of the three approaches of hermeneutic phenomenology, narrative inquiry, and autoethnography was required to share and communicate the findings. The configuration of autoethnography as an analysis of lived experience, a reflexive narrative, and an exploration of cultures (Ellis et al., 2010) afforded me the ability to examine the complexity and real-world problems of O&M learning and teaching for students with VI. The characteristics of autoethnography—such as embracing knowledge as "situated, partial, constructed, multiple, embodied and enmeshed in power relations" (Ellingson, 2009, p. 24)—

supported my developing conceptual awareness of the alignment of O&M learning and teaching with the Australian Curriculum, and the pedagogy of O&M learning and teaching. Through autoethnography, I was able to interact with multiple modes of representation and with the multiple voices of students, parents, teachers, and my colleagues. Through the combination of the three approaches, I interrogated the beliefs, practices, and experiences associated with the sociocultural practices of O&M learning and teaching. Moreover, I reflected on my professional experience as an O&M specialist educator, and re-imagined the craft of O&M learning and teaching.

Implications of My Results and Contributions to Research

I claim four key implications from the results of my study to research and practice. The first, key implication as far as I can ascertain, is that this study is the first in the professional field of O&M to examine the pedagogy of O&M learning and teaching. The study raises awareness of O&M as a distinctive pedagogical craft, with the potential to facilitate inclusive practices and promote student self-agency. O&M learning and teaching was found to provide plausible options for the teaching and learning of students with VI. This is because O&M learning and teaching in the Queensland DoE is engineered to scaffold the ways students with VI gather and interpret their environment. The effect of the first implication of these results is potentially substantial, sustainable, and relevant to classroom teaching practices. This renders this research compatible with the Queensland Deloitte review's (DoE publishing as DET, 2017) call for the study of inclusive education practices for students with a disability in Queensland state schools.

The second implication of this study is that it establishes Bronfenbrenner's ecological model as being of particular relevance to researching O&M learning and teaching. The effect of the broader ecological systems on learning outcomes for students with VI; the perception and social construction of the influence of VI; and the premise that interactions for students with VI necessarily include people, objects, symbols and environmental features all highlight pertinent features of O&M learning and teaching. Bronfenbrenner's idea of the biophysical

qualities of the individual was particularly applicable to O&M learning and teaching because the biophysical qualities of students with VI align with self-efficacious O&M for students with VI. These biophysical qualities include the ability, experience and aptitude to gather, interpret, and navigate space, personal and prior experiences of O&M, and the student's functional vision (see Figure 9.1).

Sketched by an O&M specialist over 20 years ago, Figure 9.1 graphically depicts the biophysical qualities of students with VI. The portrait presents a young student with VI in the centre of a series of concentric circles. These concentric circles represent the ecological systems extending outwards from the student at the biosystem to the macrosystem. They also help illustrate the relationship between the development of the student with VI and the sociocultural environment. The directional arrows radiate from the student to the outermost circles, and, in the process, link the various information-gathering erudition that is specific to O&M learning and teaching. The outwards radiation of the directional arrows depicts the effect of potential student self-agency through O&M learning and teaching on the broader systems and cultures. The different shades and tones reflect the heterogeneity of visual function for students with VI. Finally, the overall picture metaphorically portrays the compass as a wayfinding tool, and as a guide to orientation for students with VI in navigating and interpreting a visual world.

The portrait in Figure 9.1 illustrates the way that systemic and cultural barriers to equitable inclusive education extend downwards and inwards to affect O&M learning and teaching, and subsequently affect student self-agency. Moreover, I consider that the student portrait also indicates the potential for O&M learning and teaching to promote an upwards and outwards trajectory of self-agency, and subsequently create positive social change for the student with VI.

Figure. 9.1. The Effect of the Ecological Systems on O&M Learning and Teaching

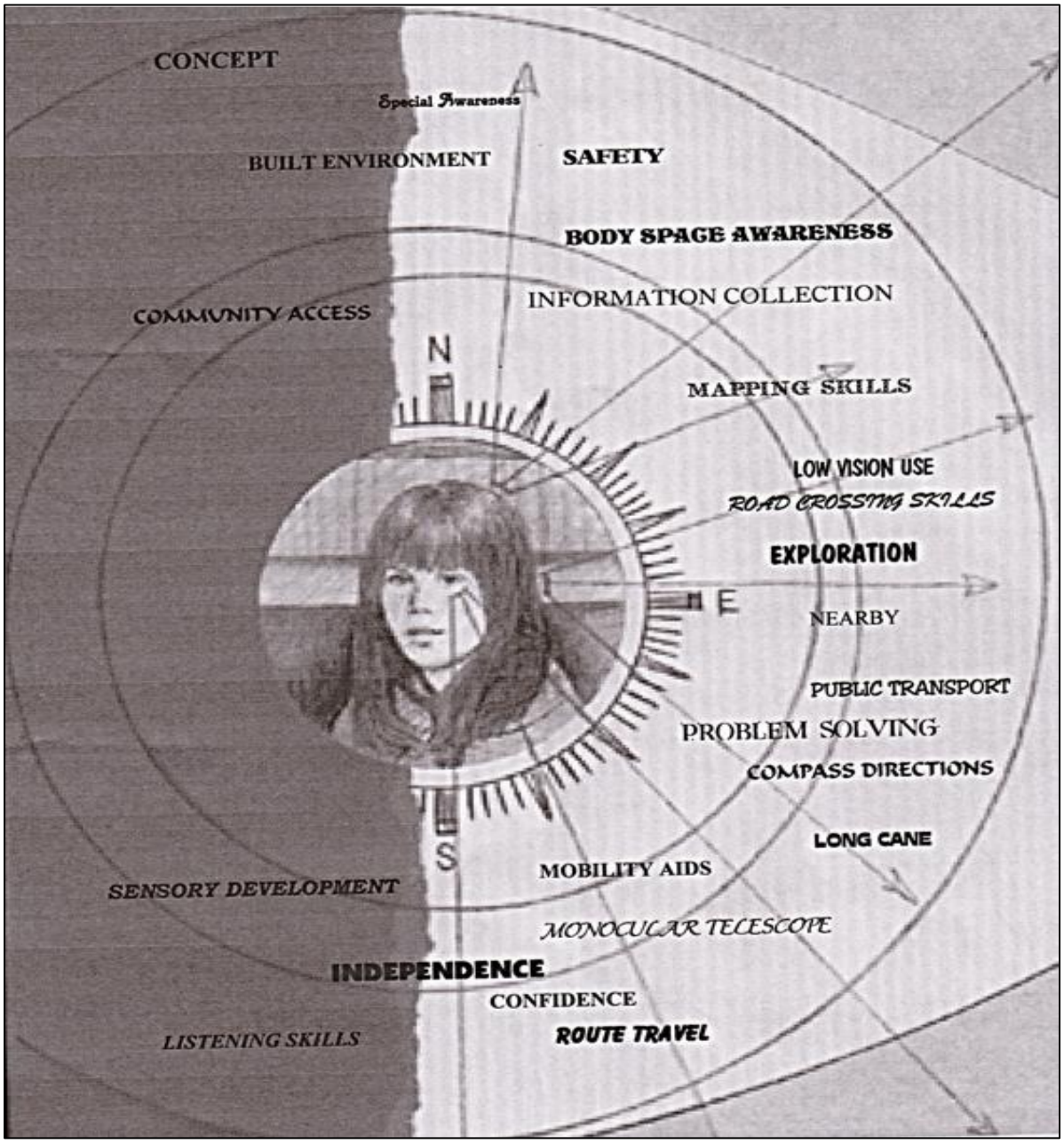


Figure 9.1. Drawing of child depicting the numerous considerations across multiple concentric circles of O&M learning and teaching for students with VI.
Orientation and mobility tools (2000). *[Line drawing]*. Queensland, Australia. Unpublished portrait. Copy in possession of author.

The third implication of this research stems from the research methodology and research methods. Combining hermeneutic phenomenology, narrative inquiry, and autoethnography shows promise as a research approach in the O&M professional field, particularly for learning and teaching. Each methodology complemented the other and

facilitated a more in-depth examination of the complex field of O&M learning and teaching. The practice of formulating vignettes proved to be a viable method of accessing and reviewing O&M learning and teaching pedagogy. Although other methods may have been possible, the phenomenological vignettes proved to be a satisfactory way of approaching the subject area of this project, given its emphasis on experiential knowledge and student voices.

A key accomplishment I would claim as the third implication for the present study is a five-part typology of ontogenetic O&M learning and teaching (see Figure 9.2). This five-part classification of O&M learning and teaching for students with VI includes attention to text and space that are relevant to the student, and the student's information-gathering skills, explicit dialogic talk and feedback, targeted shared affect, and development of self-efficacious O&M.

A Five-part Typology for Ontogenetic O&M Learning and Teaching

Ontogeny is the consideration of the development of an individual from a simple to more complex level. In anthropology, ontogeny is the "process through which each of us embodies the history of our own making" (Toren, 2002, p. 188). The developmental process identified by ontogeny is one in which students "make meaning over time out of meanings that others have already made and so transform them" (Toren, 2002, p. 188). According to Toren (2002), ontogeny encompasses the way we become who we are, and the way we engage others in our own process of becoming.

Ontogeny is also discussed as the historical and evolutionary development of an individual (Decetya & Svetlova, 2012). From a clinical vision perspective, ontogeny relates to the evolutionary and historical development of the visual perceptual system. Research into the development of visual function and central visual processes identifies increasing insight into the developing interactions between cortical, dorsal, and ventral streams, particularly in relation to integrative visual functions, such as motion sensitivity, contour formation, texture segmentation, and attention and control of action (Braddick & Atkinson, 2011; Goodale, 2011; Lalor, Formankiewicz, & Waugh, 2016; Leat, Yadav, & Irving, 2009; Maurer & Lewis, 2018). Increasing research engagement with the evolutionary development of the visual

system provides a unique window into the “typically and atypically developing infant brain” (Braddick & Atkinson, 2011, p.1588). Therefore, ontogeny for students with VI relates to the integrative visual functions that allow for alternative information gathering of environmental features, such as motion, space, action, texture and contour, from a non-visual perspective. O&M learning and teaching is one practice for students with VI that embodies these alternative information-gathering strategies for students with VI.

O&M for students with VI is assisted by abstract cognitive abilities, such as executive functioning. Examples include self-agency, language, and perspective taking, which all enhance and expand the range of information-gathering behaviours that can be used by the student. Thus, an ontogenetic model of O&M learning and teaching highlights the process of being and becoming self-efficacious in O&M, and has the potential to depict the way students with VI “constitute anew the practices and concepts of the adults alongside whom they live their lives” (Toren, 2002, p.187). My ontogenetic model encompasses “possible methods” of educating the student with VI in O&M, with the aim that O&M learning would follow the students with VI “through the whole course of their lives” (More, 2005, p. 370).

By synthesising the results from this research and drawing on Bronfenbrenner’s biosystem, I present an ontogenetic model of O&M learning and teaching (see Figure 9.2). In this model, the biophysical attributes (emotional, physical, social and cognitive) of the student with VI are represented by the four central cells and are nested within a series of intersubjective interactions pertinent to the ontogenetic process of being and becoming in O&M learning and teaching. These outer shaded cells—labelled “text and space”, “information gathering”, “talk type and feedback”, “shared affect” and “self-efficacy”—represent the foundations of the intersubjective space, reflective of the deeply personalised O&M learning and teaching context. The model illustrates that O&M learning and teaching depends on a number of processes for inter-subjectivity that are rooted in student self-efficacy.

Placing a student’s biophysical attributes of knowledge and skills at the centre of the model highlights the importance of students as the information gatherers and adults as

facilitators of self-agency. Applying the ontogenetic model to O&M learning and teaching opens an intersubjective learning space for students with VI and their O&M specialists. The ontogenetic model of O&M learning and teaching also provides a construct for sighted outsiders, (teachers, carers, and allied professionals) who are not *"physiologically inclined"* (Lee, panel member, see Chapter 5, p. 152), with opportunities to interpret the world in non-visual ways. The ontogenetic framework for O&M learning and teaching is also the scaffold for all educators and O&M specialists to be practice architects when interacting with students with VI.

In the five-part typology of the ontogenetic framework, O&M learning and teaching interactions are categorised into five broad types: text and space, information-gathering attributes, dialogic talk and feedback, shared affect, and self-efficacious O&M. While noting the small sample size, a key result from this study was that O&M lessons which included all five interaction types corresponded to sustained dialogue and interaction between the student and myself. Where one of these interaction types was absent or unacknowledged, the effect on student self-efficacy and self-determined information gathering was evident. A curious result was that the two classroom teachers who intervened in the O&M lessons with Annie and Josie were least likely to apply these intersubjective O&M learning and teaching interactions. This highlights the importance of educating teachers about the ontogenetic framework. In this sense, the five-part typology of O&M learning and teaching may function better for people such as me, who have greater experiential knowledge of the influence of VI on development.

Text and space.

Saerberg (2010) adds to the writings of Nielsen (1990), Tuan (1977) and Anthony et al. (2010) in suggesting, differentiated modes of text and space are those within the student's visual, auditory, tactile and olfactory reach, and includes the social, cultural, and environmental spaces. Attention to the space and text that are relevant to the student with VI at any given time was observed as a key O&M learning tool; however, the execution of this within regular classroom settings may require further investigation and research.

Information-gathering attributes, knowledge and skills.

Teacher attention or inattention to the student's information-gathering skills, attributes and knowledge leads to tentative suggestions about why and under which circumstances the intersubjective O&M learning and teaching space can be sustained. Further research needs to be conducted to establish whether these tentative suggestions hold; however, they are consistent with the themes revealed in the writings of Brannock and Golding (2000) and De Bono (1967). The data suggest that O&M learning and teaching for students with VI is most effective when the teacher talk is directed to the information-gathering skills demonstrated by the student, and scaffolded to build on individual strategies.

Dialogic talk and feedback.

The vignettes highlighted that highly favoured modes of language were dialogic language markers, such as process statements, including modelling and think alouds; reconstruction and restatements; and elaboration and projection. Feedback from the O&M teacher to the student's information-gathering process was also seen as a key learning tool, although the quality of feedback is an area for future reflection, with many lessons lacking a balance between feedback to future actions and feedback to student personal attributes (Hattie & Timperlay, 2007; Hattie & Yates, 2014).

Shared affect.

The possible explanations for the influence of *shared affect* on O&M learning and teaching stemmed from the writings of Nielsen (1990). They also came from research by Lindsay and Calders (2015) regarding the five phases of interaction, as well as interactions between parents and their children. Shared affect refers to situations in which the adult and student are responsive and attuned to each other, are mutually supportive, and have an interaction that is cooperative, with a willingness to comply with each other. Shared affect is typified by "smooth flowing, co-ordinated interactions" (Lindsay & Caldera, 2015, p. 408). Lindsay and Caldera (2015) found that shared affect has two main characteristics: mutual responsiveness and shared positive affect. According to Kochanska (2002, p. 191), shared affect fosters the "development of conscience" and responsiveness in young children. In the

O&M lessons, the students appeared engaged and motivated, and the O&M interaction was sustained when the O&M teacher exploited shared affect. Further research may add to understandings of shared affect in regular classroom practice, and in O&M practice for students with VI.

Self-efficacious O&M.

The self-efficacy themes reflected in the data are central to the overall O&M learning and teaching interaction and core constructs of social change. The data on self-efficacy are consistent with previous research on self-determination, self-advocacy, and self-agency for students with VI by Willings (2018), Deverell et al. (2015), and Tuttle and Tuttle (2000). A key point is that social change and change to learning outcomes for students with VI is determined not solely by the greater cultures and systems, but also by the student exhibiting self-efficacious O&M.

I refer to self-efficacious O&M as the belief of students with VI in their capacity to execute the information-gathering behaviours necessary to produce specific sociocultural and environmental interactions, and to have control over the way these interactions are experienced (Bandura, 1977, 1993). Self-agency skills lead to inclusive education (McLinden et al., 2016). Enhancing individual self-agency—such as aptitudes, values, and dispositions— may lead to powerful cultural and social change (Astin & Astin, 2000). Likewise, the development of personal competency beliefs, intrinsic motivation and resilience skills are integral to social change (Garrin, 2014). By first building student self-agency, whereby students learn to advocate for themselves, the students may then be more able to assist others to self-advocate. A student with VI who displays self-efficacious O&M has the potential to alter societal perception of VI, increase public and professional awareness of O&M learning and teaching, and facilitate social change.

There may be many more pedagogical practices within an O&M learning and teaching episode. Nevertheless, it is possible that this typology of O&M learning and teaching will contain some pointers regarding the ways in which O&M learning and teaching could be developed in other fields of education in the future.

Figure 9.2. A Five-part Typology for Ontogenetic O&M Learning and Teaching

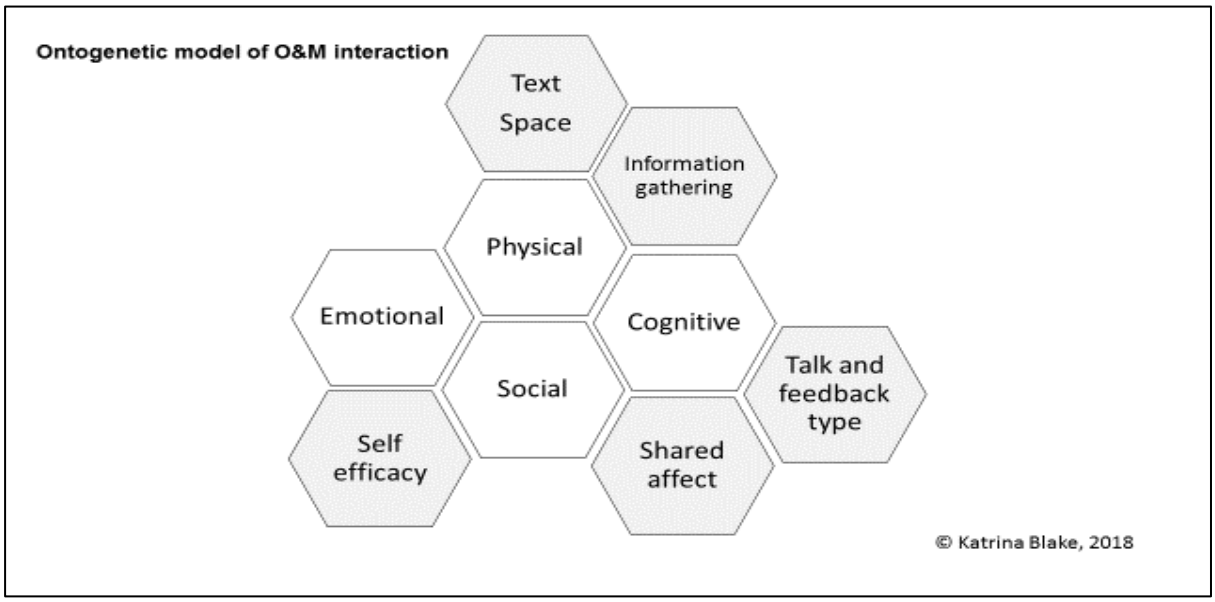


Figure 9.2. In this diagram, the biophysical attributes (emotional, physical, social, and cognitive) of the student with VI are represented by the four central cells and are nested within a series of intersubjective interactions pertinent to the ontogenetic process of being and becoming in O&M learning and teaching. These outer shaded cells are labelled with the five-part typology of O&M learning and teaching: text and space, information gathering, talk type and feedback, shared affect, and student self-efficacy.

Recommendations for Practice and Implications for Future Research

Through this research, I have learnt a great deal about O&M and have developed a better understanding of the craft that is O&M learning and teaching. Along the way, I have exposed several previously tacit understandings of O&M and have disseminated this practice—through discussion, modelling, and professional workshops—back to schools and support staff to inform future O&M programming for students with VI.

The results of this study have illuminated several major possibilities for future O&M learning, teaching, and research. These possibilities are the potential for O&M learning and teaching to be aligned with the Australian Curriculum, to facilitate inclusive practices, and to aid the development of student self-agency. In addition, the specific methodology and methods approach, and the use of Bronfenbrenner's conceptual theoretical framework employed in this study, demonstrate promise for future research in the field of O&M. Further, the consideration of O&M learning and teaching as a craft and as practice architecture,

alongside the application of an ontogenetic framework, is of exponential value to the profession and to self-efficacious O&M for students with VI. In particular, this research has opened the space for new understandings of O&M learning and teaching as a *"developing practice beyond vision impairment"* (Lee, panel member). This research has moved away from the traditional focus of O&M programs, and illuminated O&M learning and teaching as a pedagogical craft. The Queensland DoE O&M pedagogy identified in this study also has potential for incorporation into regular classroom teaching practices for students with and without disabilities.

I specifically requested the O&M specialist panel to contribute their suggestions around future research options for O&M learning and teaching. Both Lee and Reginald provided suggestions for future investigations and developing awareness of O&M learning and teaching. They suggested the use of "*picture boards"* to denote *"various [O&M] interactions with children with VI"*, with "*standard actions being narrated in them".* Lee suggested that participants could then establish "*an ordinal value to the tasks being shown in the pictures".* Reginald added that individuals can *"apply labels using their own words to demonstrate their knowledge of what is happening"*, and the respondents could "*rank [the O&M interactions] in terms of importance".* Further, Lee and Reginald stated that this would help respondents to identify where *"O&M is situated within [the curriculum] sort of spectrum".*

There is undoubtedly a critical need for future research into O&M learning and teaching as practice architecture, and as a vital part of equitable outcomes for students with VI. In addition, changing the rhetoric of O&M learning and teaching is most urgently required, and developing awareness within school communities, class teachers, parents, and students themselves of the role and value of O&M is imperative. Better understanding the practice architecture of O&M learning and teaching may be the beginning of another story told by another traveller—a traveller, "or rather a philosopher" (More, 2005, p.23), who tells of a Utopic society that encompasses equal opportunities and the highest potential, not just for students with VI, but for all students.

Autoethnographic Reflection: "Sailed not as a Seaman, but as a Traveller, or rather a Philosopher" (More, trans, 2005, p. 23)

Six hundred years ago, Sir Thomas More sketched the parameters for twenty-first-century inclusive education. When More wrote *Utopia* in 1516, he imagined a just society that was equitable, safe, and free from discrimination—in other words, an ideal society that upholds respectful and dignified relationships for all. In reflecting upon my research journey, I employ More's idyllic Utopia as a metaphor for inclusive education—an altruistic educative state foundered on awareness and understanding. However, ironically, "utopia" is also a derivation of the Greek term "no place" (eNotes.com, 2018).

My initial inspiration for this research commenced many years ago, when, as an O&M teacher, I observed differences between the classroom teaching practices for students with VI and O&M teaching practices. However, I was unable to articulate those differences. I believed there was disparity in how the students presented in their classroom and how the same students presented in their O&M lessons. For example, I had discussions with school staff who reported low levels of academic engagement of students with VI, who were enthusiastic contributors in O&M lessons. Prior to the current study, I also observed a number of students with VI disengaging from the traditional and formal type of O&M lessons, and unsuccessfully seeking to self-advocate for their needs in the classroom and in the O&M lessons. These musings led me to the present research, where I have had the opportunity, through autoethnography and narrative inquiry, to reflect upon my own professional experiences with O&M learning and teaching, to have numerous discussions with my colleagues, and to view retrospectively the experiences of the students with VI who I teach.

Prior to the current research, I considered that most significant to my O&M profession was my lived experience of otherwise competent adults with VI continuing to seek the assistance of sighted people to show them around (Ryles, 2008). Retrospectively, I consider that these adults deferred all knowledge to the person with the sight. I reflect that, in my opinion, these adults with VI were not self-efficacious in their O&M because they did not view themselves as information gathers.

During an interview in my earlier research, Julie (a participant and O&M specialist) exemplified the idea of information gathering. Julie stated that information gathering assisted people with VI to manage themselves and to have a "*belief in themselves*" (Blake, 2015, p. 42). She added that giving the answers to the person with VI implies that they are "*not somebody who can find things out"* for themselves, and that this effectively advises people with VI that they must rely on the sighted person as "*the carrier of the knowledge*" (p. 46). Julie's belief is compatible with the learning theories of Dewey (Rodgers, 2002), Merleau-Ponty (1962) and Van Manen (2016) on developing independent learners and thinkers. As Rodgers (2002, p. 843) argued, "thinking to learn" should be a standard to which all "teachers and students must strive".

In *Utopia*, More (trans, 2005, p. 62) wrote that, in suffering the "ill-educated" child, society is responsible for the later actions of the adult as a consequence of the early "ill-education" (p. 64). I consider that by continuing to reinforce discriminatory sociocultural notions that the person with VI needs to be shown around, and that the person with sight is the holder of all knowledge, I am suffering the ill-educated. I perceive this practice as not reinforcing self-efficacious O&M travel, and as undermining thinking to learn pedagogical practices. Students with VI like other students, are linked by the attitudes of those around them. The students with VI are "ill-educated" by an overt and dominant visual culture, and their consequent lack of self-agency "suffers" as they strive to survive within an inclusive education system that exists in "no place" (More, trans, 2005, p. 62)

The protagonist, Raphael, in More's *Utopia* is well travelled, with many stories to tell. Raphael's wisdom and character are greatly affected by his extensive travels. His journeys opened his eyes to the "overarching reality of all of human nature" (Atkins, 2017, April 3, para. 1). As Raphael re-enters his own country, he sees "more clearly than he did before". His understandings and knowledge increased by "simply taking the time to know another well" (Atkins, 2017, para. 1). In the end, although he travelled not as a seaman, but "rather as a philosopher" (More, 2005, p. 23), Raphael more fully understood both himself and those around him.

Like Raphael, I had many O&M stories to tell. However, as I explored O&M and re-entered my own profession as a "traveler or rather a philosopher" (More, 2005, p. 23), I saw O&M learning and teaching more clearly than before. By taking the time to better understand the practice of O&M learning and teaching and the alignment of O&M learning and teaching with the Australian Curriculum, I exponentially increased my understandings and knowledge of the effect of VI on interpreting, understanding, and navigating a visual world. Having thus explored the terrain of VI and O&M learning and teaching, I have reached the belief that, in Utopia:

> People would begin to see blindness as a characteristic rather than a problem to be solved. People wouldn't automatically assume that we [people with VI] are hopeless or that we'd sell our souls for sight. Whatever divisions within, discrimination would be met with a powerful response. Our unique ways of gathering information would be seen as cultural traits (Hopfe, 2011, para.15).

Throughout this research, I have focused on the complex cultures and systems affecting the overall development, and subsequent learning outcomes, of three primary school students with VI. I have "sailed not as a seaman, but as a traveller, or rather a philosopher" (More, 2005, p. 23). Through autoethnographic vignettes, narrative inquiry, hermeneutic phenomenology, and a precis of current literatures, I have invited the *light-dependent* reader into a non-visual world. Then, through systematic thematic and discourse analysis, I have turned the lens inwards to my own profession and interrogated my specific practice of O&M learning and teaching. I have undertaken all this in the hope of no longer suffering the ill-educated, and to imagine, like Sir Thomas More, an equitable and just society—a "Utopia" where students with VI have the same opportunities and learning outcomes as their sighted peers.

In More's *Utopia* (trans, 2005, p. 370), the philosopher Raphael informs Giles about education in Utopia. He speaks of all "possible methods" of educating the young student, not in "letters", but in "such opinions as are both good in themselves and will be useful to their

country". Raphael refers to self-agency and to sociocultural expectations for a Utopic society. I confirm my belief through my present study that the development of self-agency for students with VI and change to sociocultural expectations for students with VI can be facilitated by the provision of early and ongoing O&M learning and teaching, the alignment of O&M with core curricula, and consideration of the effect of VI across the ecological systems and throughout the chronosystem. As Raphael states, developing self-agency or "opinions" (p. 370) early and continuously across students' lives "preserves the peace", forgoes "ill-opinions" and ultimately leads to an overall inclusive Utopic society (More, 2005, p. 370).

In describing the Utopic society and the societal values that Utopians uphold, Raphael tells how the Utopians are bound by "humanity" (More, trans, 2005, p. 370) to use the "utmost endeavours" to expedite the happiness of others. Raphael explains that, to "advance the welfare and comfort of the rest of mankind" (More, 2005, p. 233), Utopians first search and pursue their own happiness, thereafter enabling others to seek theirs. The intention of the Utopic society is one where all people and governments work together to improve and sustain Utopian society. In Utopia, the person "begins with himself" (More, trans, 2005, p. 234), self-advocating, and then through this is able to advocate for others. "Why, then, ought not a" (More, 2005, p.234) student with VI begin by developing their own self-efficacious O&M, so they can then assist other students with VI to develop their own self-agency.

O&M learning and teaching can be understood from several perspectives (Deverell et al. 2015). In one context, O&M learning and teaching refers to the professional practice of O&M specialists in assisting students with VI with safety, efficiency, and independence of travel. Alternatively, O&M can be holistically considered a broad range of complex movement and perceptual knowledge, skills, and attributes. Moreover, O&M learning and teaching is relative to the experience of each individual student with VI. O&M learning and teaching is "complex, and is manifested differently according to each student's unique vision, abilities, circumstances, lifestyle priorities, and choices" (Deverell et al., 2015, p. 75). For me, O&M describes a blend of a traditional and developmental disability-specific erudition

that focuses on information gathering, such as “spatial concepts and skills, perceptual skills, environmental knowledge, sensory development, motor development, formal mobility skills, decision-making, and interpersonal skills” (Cmar et al., 2015, p. 3).

Conclusion

In 2017, the Queensland DoE requisitioned a review of learning outcomes for students with disabilities across Queensland state schools. The first of its kind, the Queensland Deloitte review (DoE publishing as, DET, 2017) determined the inequity of learning outcomes between Queensland based students with disabilities and their peers who were not disabled. Acknowledging differences in equal opportunities, the Queensland Deloitte review called for investigation into teaching practices for students with disabilities. Drawn from this call, my research specifically explored O&M learning and teaching as one plausible inclusive education approach for students with VI. My two research focus areas were to better understand the alignment of O&M learning and teaching with the Australian Curriculum, and to better understand the practice of O&M learning and teaching, which formed part of the overall aim of challenging the current lifelong outcomes for students with VI. Through this research I have achieved a better understanding of O&M learning and teaching, and a more explicit understanding of the alignment of O&M with the Australian Curriculum.

To ignore the inequitable lifelong outcomes for students with VI is to put at risk 70 years of declarations on human rights and the rights of people with a disability. The reality that inequitable teaching and learning continues to occur after this many years is, in my opinion, unfathomable. As stated by the World Blind Union (2017, para, 9), “now is the time to transform our communities into inclusive and equitable environments where everyone’s rights are respected, protected and promoted”.

This study has devoted particular attention to the alignment of O&M learning and teaching with the Australian Curriculum as a fundamental right and as one avenue of transformation to inclusive and equitable communities for students with VI. The study addressed the identified inequity of learning outcomes highlighted in the Queensland Deloitte disability review. The study revealed that, although there are multiple opportunities

for the alignment of O&M with the curriculum, many barriers continue to exist to full equitable inclusive education and equitable learning outcomes for students with VI in Queensland. Constraints to the alignment of O&M learning and teaching with the Australian Curriculum as identified in the study, include lack of awareness of parents and teachers of O&M learning and teaching as offering something other than the formal and technical O&M knowledge and skills. Aligning O&M learning and teaching with the curriculum will facilitate opportunities for students with VI to become self-efficacious travellers.

In 2014, Whitburn argued that a "greater focus must be placed on the education of students with VI in inclusive schools, specifically in terms of how the practices of class teachers facilitate their learning" (p. 149). In taking up this advice, my research particularly focused on the pedagogical craft of O&M learning and teaching. The results of my study revealed that O&M learning and teaching is a discursive site-based practice that unfolds in moments of interaction and under specific circumstances for, of, and as learning for students with VI. In this O&M learning space, the participating students with VI were actively participating in and co-constructing their own learning and developing self-efficacy. The study suggests that O&M learning and teaching is therefore vital in facilitating students with VI to act as advocates for social change.

The study demonstrates that the discursive practice architecture of Queensland DoE O&M learning and teaching is within the repertoire of all class teachers, and is subsequently applicable as micro-skills to whole-class teaching practices. As Khochen (2016, p. 325) argued, "enhancing the quality of teaching to meet the needs of diverse students rather than creating further separation on the grounds of needing to extend their educational curriculum would better support the implementation of inclusion". Therefore, I call for school communities to consider implementing the discursive practice architecture of O&M learning and teaching as a fundamental priority for students with VI.

There is an urgent need for greater recognition of the particularities of O&M learning and teaching in facilitating and addressing equitable learning, social, and vocational outcomes for students with VI. For too long, the outcome measures of O&M have been

relegated to quantifiable measures of mobility and long-cane travel (Deverell et al., 2015). It is imperative to increase the evidence base for successful outcomes for students with VI through consistent application of the democratic learning space that is O&M. Only when we begin to view O&M as does Josie (Year 6 student with VI), "*like the start of something*", can we truly begin to "accelerate the process towards an inclusive society where by blind and partially sighted people can fully enjoy their fundamental rights" (World Blind Union, 2017, para, 5).

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Appendix

Appendix A

Human Research Ethics Committee.

Approval Form H6845

This administrative form has been removed

Appendix B.

Department of Education and Training. Research Services.

Principal Letter.

This administrative form
has been removed

Appendix C.

Department of Education and Training. Research Services.

Approval Letter

This administrative form has been removed

This administrative form
has been removed

Appendix D

Appendix D1.

Information and consent form: School principals

INFORMATION SHEET (Principals)

PROJECT TITLE:

Integrating Orientation and Mobility for students with Vision Impairment into the Australian Curriculum. An autoethnography.

Dear Principal,
We are inviting your students [redacted] *and* [redacted], their carers and their class teachers to participate in a research project about **Orientation and Mobility (O&M)** and finding ways to improve learning outcomes for students with vision impairment (VI), not only in O&M but also in the regular classroom. The study is being conducted by **Katrina Blake** and will contribute to the Doctor of Philosophy in Education at James Cook University

Why is this research being done?
According to Pagliano (1994, p. 348) "about 80% of learning [in the regular classroom] is visual". This emphasis on vision however may present difficulties for students with VI. This is because they must rely more heavily on their other senses to develop and learn. O&M, a specialist approach developed specifically for people with VI, may offer a range of useful teaching and learning approaches that could be used with children with VI in the regular classroom.

Are there any benefits/ risks involved in this research?
This research has the potential to expand the repertoire of teaching and learning approaches available to the regular classroom teacher when working with a child with VI. The students will be primarily engaging in the same activities they usually do as per their current O&M program. The only difference will be that the students, their carers and their teachers will be asked to read and respond to my professional reflection on the individual student's lesson and consider how O&M might be integrated into their overall school program.
There are no anticipated risks in this research for the students, their carers or the teachers however, the contact details for appropriate support services follows.

- Department of Education Employee Assistance Service
  http://education.qld.gov.au/health/employee.html
  External counselling services - telephone Optum Ph: 1800 604 640

What would your student have to do?
The allocated student will be asked to:

- partake in their scheduled O&M lessons as per their regular and identified support provisions,
- reflect on their experiences of O&M as per the regular process of the O&M lesson structure, and
- agree to be audio recorded throughout their O&M lessons
- partake in an audio recorded short 15-minute face to face or telephone interview about their O&M learning.

What would your teacher and parents/carers have to do?
The allocated teacher and parents will be asked to:

- read a short (500 word) narrative about an O&M lesson
- complete a 45-minute audio recorded face to face or telephone interview about the narrative (out of school hours),
- read the transcript of the interview, and
- complete a short reflection on their experiences of O&M.

What would you have to do?
As the principal you will be invited to be an intermediary party between the researcher and the student, their parents/ carers and their teacher, to ensure their understanding that taking part in this study is completely voluntary and that they can stop taking part in the study at any time without explanation or

prejudice on the regular O&M programming. This intermediary role will assist and help absolve any potential concerns regarding the dependent relationship of student to researcher.

What are the benefits of the research to you/ your school/ your child/ school community?
The knowledge acquired from this study will add to the emerging research literature on O&M practices and pedagogies to assist in closing the learning achievement gap in literacy, numeracy, and future employment outcomes for students with VI. Additionally, embedding O&M teaching strategies into regular classroom practice will add to the knowledge base and whole school capacity of teaching and learning practices for students with VI. This particularly aligns with three key DET priorities in the Strategic Plan 2016-2020 (DET, 2016): successful learners supported to achieve their learning goals, focus on the progress of every student, and the use of high quality, evidenced based teaching practices.

How will your confidentiality be protected?
Utilising progressive consent processes the student, their parents and their teachers will be assured of the voluntary nature of their participation, their right to confidentiality, and their right to withdraw from the project at any stage. Pseudonyms will be used for all participants to aid confidentiality. In addition, a combination of fictionalising, symbolic equivalents, and composite characterisation will be used to further protect participants and educational communities. The pertinent eye conditions, functional vision, and additional disabilities of the students with VI, however, will be void of fictionalisation, characterisation or modification. Your responses and contact details, and those of your student, their parents and teachers' will be strictly confidential. Even though the data from the study will be used in research publications and reports, neither you nor your school community will be identified in any way in these publications.

Data retention and storage
Raw data (e.g. signed informed consent forms, completed interviews will be stored in accordance with the NHMRC/ Universities Australia "Australian code for the Responsible Conduct of Research", 2007 and Queensland State Archives legislation (6.8.3). Raw data for this study will be retained for at least 5 years. Any data that is stored on computer/CD/DVD will be de-identified. Signed informed consent forms from this study will be retained for 15 years. Upon completion of the study, raw data will be stored in the Principal Investigators School at James Cook University.

Ethics
Approval from the Human Research Ethics Committee, James Cook University has been sought prior to the commencement of this project. This research does not include any reference to sensitive personal, cultural, or medical issues, nor any personal data, deception or covert observation.

Your consent
By signing the consent form you are indicating your willingness for your school/ school staff/ student to participate in the research project as it is explained in this letter. Participation is completely voluntary, and you are free to refuse consent altogether without having to justify that decision, or to withdraw your consent after first giving it and discontinue participation in the study at any time without giving a reason.

What do you have to do?
Please read this Information Statement and be sure you understand it. If you would like to participate, please complete the attached consent form and return to the researcher. Keep the Information Statement for your records.
Thank you for considering this invitation and I look forward to hearing from you.
If you have any questions about the study, please contact **–**

Principal Investigator:
Katrina Blake
College of Arts, Society and Education
James Cook University
Phone:
Email: katrina.blake@my.jcu.edu.au

Supervisor:
Ass. Prof. Paul Pagliano
College of Arts, Society and Education
James Cook University
Phone:

Email: paul.pagliano@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:

Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Please keep this document for your records

References

Pagliano, P. (1994). Students with a vision impairment. In A. Ashman & J. Elkins (Eds.) *Educating children with special needs*, 2nd ed., pp 345-385. Sydney, Australia: Prentice Hall.

This administrative form
has been removed

Appendix D2.

Information and consent form: Teachers and parents

INFORMATION SHEET

(Parents, O&M specialists and teachers)

PROJECT TITLE:

Integrating Orientation and Mobility for students with Vision Impairment into the Australian Curriculum. An autoethnography.

You are invited to participate in a research project about **Orientation and Mobility (O&M)** and finding ways to improve learning outcomes for students with vision impairment (VI), not only in O&M but also in the regular classroom. The study is being conducted by **Katrina Blake** and will contribute to the Doctor of Philosophy in Education at James Cook University.

Why is this research being done?
According to Pagliano (1994, p. 348) "about 80% of learning [in the regular classroom] is visual". This emphasis on vision however may present difficulties for students with VI. This is because they must rely more heavily on their other senses to develop and learn. O&M, a specialist approach developed specifically for people with VI, may offer a range of useful teaching and learning approaches that could be used with children with VI in the regular classroom.

Are there any benefits/ risks involved in this research?
This research has the potential to expand the repertoire of teaching and learning approaches available to the regular classroom teacher when working with a child with VI. The students will be primarily engaging in the same activities they usually do as per their current O&M program. The only difference will be that you will be asked to read and respond to my professional reflection on the individual student's lesson and consider how O&M might be integrated into their overall school program. There are no anticipated risks in this research however, the contact details for appropriate support services follows.

- Department of Education Employee Assistance Service
  http://education.qld.gov.au/health/employee.html
  External counselling services - telephone Optum Ph: 1800 604 640

What will you be asked to do?

- read a short (500 word) narrative of an O&M lesson
- complete a 45-minute audio recorded face to face or telephone interview about the narrative (out of school hours), and
- read and verify the transcript of the interview.

How will your confidentiality be protected?
Utilising progressive consent processes the student, their parents and their teachers will be assured of the voluntary nature of their participation, their right to confidentiality, and their right to withdraw from the project at any stage. Pseudonyms will be used for all participants to aid confidentiality. In addition, a combination of fictionalising, symbolic equivalents, and composite characterisation will be used to further protect participants and educational communities. The pertinent eye conditions, functional vision, and additional disabilities of the students with VI, however, will be void of fictionalisation, characterisation or modification. Your responses and contact details, and those of your student/child and their parents/ teachers' will be strictly confidential. Even though the data from the study will be used in research publications and reports, you will not be identified in any way in these publications.

Data retention and storage
Raw data (e.g. signed informed consent forms, completed interviews will be stored in accordance with the NHMRC/ Universities Australia "Australian code for the Responsible Conduct of Research", 2007 and Queensland State Archives legislation (6.8.3). Raw data for this study will be retained for at least 5 years. Any data that is stored on computer/CD/DVD will be de-identified. Signed informed

consent forms from this study will be retained for 15 years. Upon completion of the study, raw data will be stored in the Principal Investigators School at James Cook University.

Ethics
Approval from the Human Research Ethics Committee, James Cook University has been sought prior to the commencement of this project. This research does not include any reference to sensitive personal, cultural, or medical issues, nor any personal data, deception or covert observation.

Your consent
By signing the consent form you are indicating your willingness to participate in the research project as it is explained in this letter. Participation is completely voluntary, and you are free to refuse consent altogether without having to justify that decision, or to withdraw your consent after first giving it and discontinue participation in the study at any time without giving a reason.

Please read this Information Statement and be sure you understand it. If you would like to participate, please complete the attached consent form and return to the researcher. Keep the Information Statement for your records.

Thank you for considering this invitation and I look forward to hearing from you.

If you have any questions about the study, please contact

Principal Investigator:
Katrina Blake
College of Arts, Society and Education
James Cook University
Phone:
Email: katrina.blake@my.jcu.edu.au

Supervisor
Ass. Prof. Paul Pagliano
College of Arts, Society and Education
James Cook University
Phone:
Email: paul.pagliano@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
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Please keep this document for your records

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Pagliano, P. (1994). Students with a vision impairment. In A. Ashman & J. Elkins (Eds.) *Educating children with special needs*, 2nd ed., pp 345-385. Sydney, Australia: Prentice Hall.

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Appendix D3.

Information and consent form: Students

INFORMATION SHEET (students)

PROJECT TITLE:

Integrating Orientation and Mobility for students with Vision Impairment into the Australian Curriculum. An autoethnography.

Your child is invited to participate in a research project about **Orientation and Mobility (O&M)** and finding ways to improve learning outcomes for students with vision impairment (VI), not only in O&M but also in the regular classroom. The study is being conducted by **Katrina Blake** and will contribute to the Doctor of Philosophy in Education at James Cook University.

What will your child be asked to do?

- Complete their regular O&M lessons
- Discuss their O&M skills at the end of each lesson
- Answer four interview questions about their O&M lessons and have their answers recorded. (You or your child can request an adult to be with them for this interview).
- Read and confirm their interview responses.

How will your child's confidentiality be protected?

Your child's participation in this project is voluntary. You and your child have the right to withdraw from the project at any stage. Your child also has the right to confidentiality. Your child will not be identified in any way in research publications and reports. Their visual diagnosis, functional vision, and learning strengths however, will be included in these reports. Your child's responses and contact details, will be strictly confidential.

Your consent

By providing consent you are indicating your willingness for child to participate in the research project as it is explained in this letter. Your child's participation is completely voluntary, and you or child are free to refuse consent altogether without having to justify that decision, or to withdraw your consent after first giving it and discontinue participation in the study at any time without giving a reason. Your child will continue to receive the same O&M service regardless of their participation in this research project.

There are no anticipated risks in this research however, your Principal has appropriate contact details for support services.

Please read this Information Statement and be sure you understand it. If you would like your child to participate, please complete the attached consent form and return to your principal.
Keep the Information Statement for your records.

Thank you for considering this invitation and I look forward to hearing from you.

If you have any questions about the study, please contact **-**

Principal Investigator:
Katrina Blake
College of Arts, Society and Education
James Cook University
Phone:
Email: katrina.blake@my.jcu.edu.au

Supervisor
Ass. Prof. Paul Pagliano
College of Arts, Society and Education
James Cook University
Phone:
Email: paul.pagliano@jcu.edu

If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

This administrative form
has been removed

Appendix D4.

Information and consent form: Panel

INFORMATION SHEET (Panel)

PROJECT TITLE:

Integrating Orientation and Mobility for students with Vision Impairment into the Australian Curriculum. An autoethnography.

You are invited to participate in a research project about **Orientation and Mobility (O&M)** and finding ways to improve learning outcomes for students with vision impairment (VI), not only in O&M but also in the regular classroom. The study is being conducted by **Katrina Blake** and will contribute to the Doctor of Philosophy in Education at James Cook University.

Why is this research being done?
According to Pagliano (1994, p. 348) "about 80% of learning [in the regular classroom] is visual". This emphasis on vision however may present difficulties for students with VI. This is because they must rely more heavily on their other senses to develop and learn. O&M, a specialist approach developed specifically for people with VI, may offer a range of useful teaching and learning approaches that could be used with children with VI in the regular classroom.

Are there any benefits/ risks involved in this research?
This research has the potential to expand the repertoire of teaching and learning approaches available to the regular classroom teacher when working with a child with VI. There are no anticipated risks in this research however, the contact details for appropriate support services follows.

- Department of Education Employee Assistance Service
  http://education.qld.gov.au/health/employee.html
  External counselling services - telephone Optum Ph: 1800 604 640

What is a consultative panel?
As a member of the consultative panel you will be invited to comment on, and verify data at three key stages of the research. The panel members will remain anonymous to each other and will be recruited using purposive sampling methods. The panel will be initially contacted for recruitment by email and all remaining contact will be through email or electronic media. The opinions of the panel will be based on their own personal knowledge and experiences. Consensus of opinion will not be sought from the panel. The summarised views of the other panel members will be collated and sent to panel members for further comment and verification. This cycle will be repeated at each stage of the data collection process and in this way will offer a structure for group communication and sharing of professional opinions. The panel participants will primarily be asked through Socratic questioning whether they agree or disagree with the data and to add any additional comments or insights from four perspectives; credibility, transferability, dependability and confirmability.

What would you have to do?

- Be an anonymous member of a consultative panel for moderation of bias, triangulation and validity of research data.
- provide opinions based on your experiences and personal knowledge at three stages throughout the research project
- read and respond to six questions on a short (500 word) narrative of an O&M lesson
- read and respond to six questions on the themes identified from the research interviews
- read and respond to six questions on the opinions of the other members of the panel
- read and respond to six questions on the findings of the research
- read and respond to six questions on the presentation of the data

How will your confidentiality be protected?
Your involvement and participation in the consultative panel is completely voluntary. Your details will be have confidential and you will have the right to withdraw from the project at any stage. Pseudonyms will be used for all participants and students to aid their confidentiality. In addition, a

combination of fictionalising, symbolic equivalents, and composite characterisation will be used to further protect participants and educational communities. The pertinent eye conditions, functional vision, and additional disabilities of the students with VI, however, will be void of fictionalisation, characterisation or modification. Your responses and contact details, and those of your student/child and their parents/ teachers' will be strictly confidential. Even though the data from the study will be used in research publications and reports, you will not be identified in any way in these publications.

Data retention and storage
Raw data (e.g. signed informed consent forms, completed interviews will be stored in accordance with the NHMRC/ Universities Australia "Australian code for the Responsible Conduct of Research", 2007 and Queensland State Archives legislation (6.8.3). Raw data for this study will be retained for at least 5 years. Any data that is stored on computer/CD/DVD will be de-identified. Signed informed consent forms from this study will be retained for 15 years. Upon completion of the study, raw data will be stored in the Principal Investigators School at James Cook University.

Ethics
Approval from the Human Research Ethics Committee, James Cook University has been sought prior to the commencement of this project. This research does not include any reference to sensitive personal, cultural, or medical issues, nor any personal data, deception or covert observation.

Your consent
By signing the consent form you are indicating your willingness to participate in the research project as it is explained in this letter. Participation is completely voluntary, and you are free to refuse consent altogether without having to justify that decision, or to withdraw your consent after first giving it and discontinue participation in the study at any time without giving a reason.

Please read this Information Statement and be sure you understand it. If you would like to participate, please complete the attached consent form and return to the researcher. Keep the Information Statement for your records.

Thank you for considering this invitation and I look forward to hearing from you.

If you have any questions about the study, please contact

Principal Investigator:
Katrina Blake
College of Arts, Society and Education
James Cook University
Phone:
Email: katrina.blake@my.jcu.edu.au

Supervisor
Ass. Prof. Paul Pagliano
College of Arts, Society and Education
James Cook University
Phone:
Email: paul.pagliano@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
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James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Please keep this document for your records

References

Pagliano, P. (1994). Students with a vision impairment. In A. Ashman & J. Elkins (Eds.) *Educating children with special needs*, 2nd ed., pp 345-385. Sydney, Australia: Prentice Hall.

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Appendix E

O&M Narrative Scenario

She is contemplating a great puddle of murky water in the middle of an O&M lesson (supposedly on initiating social interaction).

I first met her some three years ago now. She is six years old and in year 1. She has a significant and deteriorating VI. From a functional vision point of view, she can see big objects such as walls, poles, and moving people, and can't really see much detail beyond one metre. Recognising and finding her friends in the playground is, in her words "a bit tricky." She however, like lots of young people who are blind or VI has an inbuilt adult magnet and is equally adept at getting and sustaining adult attention anywhere in the school. She is not however, so great at the whole social/ friend/ peer thing. Even as a younger kindergarten child, she played on her own, restricted her play to known areas, controlled the play activity on her own terms, or shadowed the attending adult. From an educational perspective, she uses a Close Circuit TV and would be considered behind her peers in literacy and numeracy, particularly with reading fluency and comprehension. Classroom teachers often comment that she is "easily distracted", "likes to get her own way" that she "doesn't listen", is "disorganised", or that she "can do it if she really tries or wants to." She makes fantastic assumptions about objects and environments but is not so great in confirming these assumptions with deduced information or exploration.

She had totally missed the spillage of milk and water from the earlier incident involving two much older students who were supposedly helping to clean the tuckshop. The physics involved in simultaneously hurdling a bench seat while holding the one bucket of water having eluded them. The spillage occurred only three steps directly in-front of us, and though I both saw and heard the incident, the splash, the hilarity, and the aftermath, I did not consider that she had not attended to any of this surrounding entertainment. I assumed she was paying avid attention to my verbal prompts about finding her friends in the playground. The aftermath, was a constant background of movement, noise, and hysterics as the boys (both unhurt) attempted to clean, mop and camouflage any residual evidence of their inept judgement. Their efforts echoed and reverberated around the undercover play area where we were seated. At one stage, a class walking past was informed by their teacher to "go around the water" as several students found the puddle more intriguing and inspirational then walking in two quiet lines.

She suddenly stands and says "Hey, I can see water here, where did that come from?" I don't' see a puddle. I see a text. I see an O&M learning and teaching opportunity. I see a literacy and language opportunity. I see a reading comprehension task, an

opportunity to predict, infer, confirm, and evaluate a text. I see an opportunity to undertake a shared ‘picture walk’, and a shared reading experience. I see an opportunity to develop science inquiry and investigation skills, and mathematics problem solving and measurement skills. More importantly, I see the opportunity for critical and creative thinking skills, and self-determined mobility. I see a formative assessment opportunity in identifying what she was attending to during the misadventure.

Appendix F

Transition to secondary school program. (Josie)

Orientation and Mobility Transition to High School. Unit Plan Year 6

Transition to High School

In this unit students investigate and explore a range of environments in the high school. They investigate, gather information and compare similarities and differences in the different features within the spatial, social, and environmental texts of the high school. Students complete a comprehension task about a particular environmental text they have investigated.

Throughout the unit, ensure the students have multiple opportunities to develop their higher order thinking skills. Students develop skills in thinking when they are reflecting, inquiring, generating, analysing, synthesising and evaluating.

Helpful information - Higher-order thinking skills Years 3-6 https://learningplace.eq.edu.au/cx/resources/file/9bd81b3a-7e0f-4031-b685-85cdd806fd89/1/Higher_Order_Thinking.html

Assessment

Assessment Task Summary	Type	Learning Areas	Status	Date
Reading comprehension: (Yr. 06) To analyse and compare environmental, social and cultural text structures and features used for navigation and orientation purposes in a high school environment.	Monitoring	English	Unscheduled	TBA

Document Table of Contents

Curriculum	Teaching content	Assessment
• Australian Curriculum • Dimensions of teaching and learning	Teaching Content Summary. This content summary is flexible and many areas overlap throughout the unit. Reading comprehension and higher order thinking skills are key concepts across the unit. The sequence of the unit is dependent on student interests, prior knowledge and abilities. • Orientation, information gathering skills, attention to information. • Reading comprehension • Map interpretation and construction • Asking, questions to seek directions, receiving and giving directions • Asking questions to seek assistance/ problem solve	• Monitoring - Reading comprehension: (Yr. 06)

	• Timetables, recess and change of class times • Times and estimation of time, 24-hour time, digital and analogue time • Diary use, management of tasks over time • Key staff, locations and names, GO, head of department • Admin, student services, sick bay • Tuckshop, menu, process, times, retail transactions and purchasing, queuing • Library, times, process, activities • Specialist rooms and programs, Go, Nurse, science, art, Home economics, music, HPE • Problem solving- "what if's" • Conversation starters, friendship groups • Drop off and pick up areas. • Travel to and from school • Self-advocacy/ self - determination. • Organisation, lockers, equipment, port racks • Social spaces at the school, eating leisure, groupings	

Year 6 Achievement Standard English

Receptive modes (listening, reading and viewing)

By the end of Year 6, students understand how the use of text structures can achieve particular effects. They analyse and explain how language features, images and vocabulary are used by different authors to represent ideas, characters and events.

Students compare and analyse information in different and complex texts, explaining literal and implied meaning. They select and use evidence from a text to explain their response to it. They listen to discussions, clarifying content and challenging others' ideas.

Productive modes (speaking, writing and creating)

Students understand how language features and language patterns can be used for emphasis. They show how specific details can be used to support a point of view. They explain how their choices of language features and images are used.

Students create detailed texts elaborating on key ideas for a range of purposes and audiences. They make presentations and contribute actively to class and group discussions, using a variety of strategies for effect. They demonstrate an understanding of grammar, and make considered vocabulary choices to enhance cohesion and structure in their writing. They use accurate spelling and punctuation for clarity and make and explain editorial choices based on criteria.

Year 6 Level Description

The English curriculum is built around the three interrelated strands of Language, Literature and Literacy. Teaching and learning programs should balance and integrate all three strands. Together the strands focus on developing students' knowledge, understanding and skills in listening, reading, viewing, speaking, writing and creating. Learning in English builds on concepts, skills and processes developed in earlier years, and teachers will revisit and strengthen these as needed.

In Years 5 and 6, students communicate with peers and teachers from other classes and schools, community members, and individuals and groups, in a range of face-to-face and online/virtual environments. Students engage with a variety of texts for enjoyment.

Orientation and Mobility (O&M)

Orientation and Mobility is an interrelated and multi-disciplinary field that supports students who are blind or vision impaired to move safely, efficiently and effectively through the environment. Students engage with a variety of texts for orientation and navigation purposes. They listen to, read, view, interpret and evaluate spoken, written and multimodal, environmental and social texts. Students draw on contextual, visual, auditory, and kinaesthetic feedback and prior knowledge in in systematic ways to work out what a text says. This includes predicting, recognising known texts, monitoring location and environments through which they travel, identifying and correcting errors in travel, and predicting and reasoning for the primary purpose of navigation and self-determined movement. Students develop their understanding of how texts, including social texts, are influenced by context, purpose and audience.

Content Descriptions. English

Language	**Literacy**	**Literature**
Expressing and developing ideas • Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts. ACELA1524 • Investigate how vocabulary choices, including evaluative language can express shades of meaning, feeling and opinion. ACELA1525 *Language for interaction* • Understand that strategies for interaction become more complex and demanding as levels of formality and social distance increase. ACELA1516 • Understand the uses of objective and subjective language and	*Interacting with others* • Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions. ACELY1709 • Use interaction skills, varying conventions of spoken interactions such as voice volume, tone, pitch and pace, according to group size, formality of interaction and needs and expertise of the audience. ACELY1816 *Interpreting, analysing, evaluating* • Use comprehension strategies to interpret and	*Literature and context* • Make connections between students' own experiences and those of characters and events represented in texts drawn from different historical, social and cultural contexts. ACELT1613 *Responding to literature* • Analyse and evaluate similarities and differences in texts on similar topics, themes or plots ACELT1614 • Identify and explain how choices in language, influence personal response to different texts ACELT1615 *Examining Literature* • Identify, describe, and discuss similarities and differences between texts, including those by the same author or illustrator, and evaluate characteristics that define an author's individual style. ACELT1616

bias. ACELA1517 *Text structure and organisation* • Investigate how the organisation of texts into chapters, headings, subheadings, home pages and sub-pages for online texts and according to chronology or topic can be used to predict content and assist navigation ACELA1797 • exploring a range of everyday, community, literary and informative texts discussing elements of text. ACELA1518 • Understand that cohesive links can be made in texts by omitting or replacing words. ACELA1520	analyse information and ideas, comparing content from a variety of textual sources including media and digital texts. ACELY1713 • Use comprehension strategies to analyse information, integrating and linking ideas from a variety of print and digital sources ACELY1703 • Analyse how text structures and language features work together to meet the purpose of a text ACELY1711 • Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings ACELY1712	

Cross-curriculum content descriptions
Orientation and mobility has strong links to literacy, and multiple links to the inquiry and investigative knowledge and skills across the curriculum including, **Mathematics, Science, HASS, and HPE**. Orientation and a particularly strong connection to the **General Capabilities** including; **Literacy, Numeracy, Personal and Social Capabilities and Critical and Creative Thinking.**

Content Descriptions. Mathematics	Content Descriptions. HASS	Content Descriptions. Science	Content Descriptions. HPE
Measurement and Geometry *Location and transformation* • Use a grid reference system to describe locations. Describe routes using landmarks and directional language ACMMG113 • Interpret and use timetables. ACMMG139 *Using units of measurement* • Compare 12- and 24-hour time systems and convert between them. ACMMG110 • Solve problems involving the comparison of lengths and areas using appropriate units ACMMG137 **Number and Algebra** *Money and financial mathematics* • Solve problems involving purchases and the calculation of change (ACMNA080) • Create simple financial plans (ACMNA106) • Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies (ACMNA132) • Investigate and calculate 'best buys', with and	**Inquiry and skills** ***Researching*** • Organise and represent data in a range of formats including tables, graphs and large- and small-scale maps, using discipline-appropriate conventions **ACHASSI124** • Locate and collect relevant information and data from primary sources and secondary sources (ACHASSI123) ***Questioning*** • Develop appropriate questions to guide an inquiry about people, events, developments, places, systems and challenges (ACHASSI122) *Evaluating and reflecting* • Use criteria to make decisions and judgements and consider advantages and disadvantages of preferring one decision over others	**Science inquiry skills** *Processing and analysing data and information* • Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate. ACSIS107 *Questioning and predicting* • With guidance, pose clarifying questions and make predictions about scientific investigations. ACSIS232 • With guidance, pose clarifying questions and make predictions about scientific investigations (ACSIS232) *Planning and conducting* • Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS103)	**Personal, Social and Community Health** *Being healthy and safe* • Investigate community resources and ways to seek help about health, safety and wellbeing (ACPPS053) • Examine how identities are influenced by people and places (ACPPS051) *Communicating and interacting for health and well-being.* • Practise skills to establish and manage relationships (ACPPS055) • Examine the influence of emotional responses on behaviour and relationships (ACPPS056)

without digital technologies (ACMNA174)	(ACHASSI131) • Reflect on learning to propose personal and/or collective action in response to an issue or challenge, and predict the probable effects (ACHASSI132)		

Dimensions of teaching and learning

Curriculum intent:
What do my students need to learn?

Curriculum is the planned learning that a school offers and enacts. Curriculum intent is what we want students to learn from the mandated curriculum. Teachers decide how best to plan and deliver the curriculum to ensure all students have opportunities to engage in meaningful learning.

In this unit the following definitions and assumptions underpin the teaching and learning.
** **text**: Text forms and conventions have developed to help us communicate effectively with a variety of audiences for a range of purposes. *Texts* can be written, spoken or multimodal and in print or digital/online forms. Multimodal texts combine language with other systems for communication, such as print text, visual images, soundtrack and spoken word as in film or computer presentation media.
**In this unit the text is any object, environment, person, space that the student is engaged with or attending to as a means for communication about their environment

*** **text processing strategies**: Strategies readers use to decode a *text***. These involve drawing on contextual, semantic, grammatical and phonic knowledge in systematic ways to work out what a text says. They include predicting, recognising words and working out unknown words, monitoring the reading, identifying and correcting errors, reading on and rereading.

*** **identities**: Individual characteristics (including thoughts, ideas, feelings and attitudes towards self-worth) and capabilities of a person, or characteristics of a social group. Identity refers to all things that define who we are at any given moment in our lives. It is not static. We construct our *identities* according to things such as where we come from, what we believe in, who we relate to, how we belong, how we behave and what we do.

General Capabilities
This unit provides opportunities for students to engage in the above Australian Curriculum Content descriptions and with the following General Capabilities.

Literacy	**Numeracy**
Comprehending texts through listening, reading and viewing • Navigate, read and view learning area texts	*Recognise and use patterns and relationships* *Using spatial reasoning* *Interpreting statistical information* *Using measurement*

• Listen and respond to learning area texts • Interpret and analyse learning area texts • Use language to interact with others • Use knowledge of text structures *Composing texts through speaking, writing and creating* *Text knowledge, Word Knowledge, Visual Knowledge* **Critical and Creative thinking** *Inquiring – identifying, exploring and organising information and ideas* • Pose questions • Identify and clarify information and ideas • Organise and process information *Generating ideas, possibilities and actions* • Imagine possibilities and connect ideas • Consider alternatives • Seek solutions and put ideas into action *Reflecting on thinking and processes* • think about thinking (metacognition) • Reflect on processes • Transfer knowledge into new contexts *Analysing, synthesising and evaluating reasoning and procedures* • Apply logic and reasoning • Draw conclusions and design a course of action • Evaluate procedures and outcomes • Reflect on processes • Transfer knowledge into new contexts • Apply logic and reasoning • Draw conclusions and design a course of action • Evaluate procedures and outcomes	**Personal and Social capability** *Self-awareness* • Recognise emotions • Recognise personal qualities and achievements • Understand themselves as learners *Self-management* • Express emotions appropriately • Develop self-discipline and set goals • Work independently and show initiative • Become confident, resilient and adaptable *Social awareness* • Appreciate diverse perspectives • Contribute to civil society • Understand relationships *Social management* • Communicate effectively • Work collaboratively • Make decisions • Negotiate and resolve conflict • Develop leadership skills
Relevant prior curriculum Students require prior experience with the following: • understanding how environmental, spatial, social and cultural texts vary in purpose, structure and topic • Gathering and interpreting a range of information to interpret a range of environmental, social and cultural texts. • understanding how noun groups/phrases and adjective groups/phrases can be expanded in a variety of ways to provide a fuller description of the person, place, thing or idea • presenting a point of view about particular literary texts using appropriate metalanguage, and reflecting on the viewpoints • of others • using metalanguage to describe the effects of ideas, text structures and language features on particular audiences	

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- identifying and explaining characteristic text structures and language features used in imaginative, informative and
- persuasive texts to meet the purpose of the text.

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What do my students already know?
What do my students need to learn?
How do I teach it?

Feedback is information and advice provided by a teacher, peer, parent or self about aspects of someone's performance. The aim of feedback is to improve learning and is used to plan what to teach next and how to teach it.

Teachers and students use feedback to close the gap between where students are and where they aim to be. Teachers use self-feedback to guide and improve their teaching practice.

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Differentiation
What do your students already know and what do your students need to learn? Consider the individual needs of your students -
including EAL/D, gifted and talented and students requiring additional support.

Start where students are at and differentiate teaching and learning to support the learning needs of all students. Plan and document how you will cater for individual learning needs.

The learning experiences within this unit can be differentiated by increasing:

- the frequency of exposure for some students
- he intensity of teaching by adjusting the group size
- the duration needed to complete tasks and assessment.

Feedback to students
Establish active feedback partnerships between students, teachers and parents to find out:

- what each student already knows and can do
- how each student is going?
- where each student needs to go next.

Ensure feedback is timely, ongoing, instructive and purposeful.
Feedback may relate to literacy, information gathering strategies and higher order thinking skills. In this unit this may include students' ability to:

- identify text structures, language features and strategies used by predict and confirm text features
- identify words and word groups that expand and sharpen ideas about description of text features
- understand how text structures and language features work together to assist orientation

Use feedback to inform future teaching and learning.

Reflection on the unit plan
Identify what worked well during and at the end of the unit for future planning. Reflection may include:

- activities that worked well and why
- activities that could be improved and how
- monitoring and assessment that worked well and why
- monitoring and assessment that could be improved and how
- common student misconceptions that need, or needed, to be clarified
- differentiation and future student learning needs.

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Assessment
What do my students understand and can do? How

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Monitoring student learning

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well do they know and do it? Assessment is the purposeful, systematic and ongoing collection of information as evidence for use in making judgments about student learning. Principals, teachers and students use assessment information to support improving student learning. Feedback from evaluation of assessment data helps to determine strengths and weaknesses in students' understanding.	Student learning should be monitored throughout the teaching and learning process to determine student progress and learning needs. Each lesson provides opportunities to gather evidence about how students are progressing and what they need to learn next. Specific monitoring opportunities in this unit may include: **Reading and writing** Students' ability to: • comprehend environmental, social and cultural texts and record information about the text structure, language features, and purpose of texts in the high school environment • make comparisons between different texts, specifically language features and text structures. **Student work samples:** Collect samples of written personal responses to environmental, social and cultural texts to gather information about how students: • analyse the comparisons between texts using specific metalanguage • analyse how information in different texts is used to provide navigation and orientation • write complex sentences **Speaking and listening:** Students' ability to: • participate in informal discussions about how to compare language features, information and Near-by considerations in different environmental, social and cultural texts. • Predict, confirm, evaluate and monitor comprehension of the environmental, social, cultural and spatial texts of the high school **Monitoring task - Reading comprehension:** Assessment Description: Students analyse and compare text structures and language features used to influence and support navigation and orientation This monitoring task provides opportunities to gather information about how students: • understand how the use of text structures can achieve particular effects for orientation and navigation • analyse and explain how language features and vocabulary are used by authors to represent ideas, information and features • compare and analyse information in different texts, explaining literal and implied meaning • elect and use evidence from a text to explain their response to it.
Sequencing teaching and learning	**Teaching strategies and learning experiences**

What do my students already know and can do? What do my students need to learn? How do I teach it? The relationship between what is taught and how it is taught is critical in maximising student learning. Start with what your students already know and set goals for the next steps for learning. Decide how to provide multiple opportunities for all students to explore and consolidate ideas, skills and concepts by considering how students learn best and by using a variety of teaching strategies.	A suggested learning sequence is outlined below. This list id not exclusive and different schools and students may have a variety of supplementary learning opportunities. Many of these skills overlap and are not presented in a hierarchal manner. The teaching sequence is dependent on student prior knowledge and skills. For the student who is blind or vision impaired these skills are required to be explicitly scaffolded for different times of the school day for example, during lunch times, change of class, etc. *Embedded into each lesson are* • Comprehension strategies • Information gathering strategies • Meta language • Higher order thinking • Self-determination. *Introduction to environmental features of the high school* • Orientation, information gathering skills, attention to information. • Comparing environmental features of the high school to other campuses • Investigating different text features of the high school • Developing and monitoring comprehension strategies • Review, reinforce and extend learning *Cultural and spatial environments* • Admin, student services, sick bay • Tuckshop, menu, process, times, retail transactions and purchasing, queuing • Library, times, process, activities • Specialist rooms and programs, Go, Nurse, science, art, Home economics, music, HPE • Drop off and pick up areas. • Travel to and from school *Map interpretation and construction* • Asking, questions to seek directions, receiving and giving directions • Drawing and interpreting formal and mud maps *Self-determination* • Asking questions to seek assistance/ problem solve • Key staff, locations and names, GO, head of department • Problem solving- “what if’s” • Self-advocacy/ self –determination • Vision impairment, needs, supports Social environments • Social spaces at the school, eating leisure, groupings • Recess and break options/ locations *Organisation* • Timetables, recess and change of class times • Times and estimation of time, 24-hour time, digital and analogue time • Diary use, management of tasks over time • Conversation starters, friendship groups

	• Organisation, lockers, equipment, port racks *Assessment task* • Preparing for monitoring task • Completing the monitoring task *Review, reinforce and extend learning*
Making judgments How do I know how well my students have learned? Teachers and students use standards to judge the quality of learning based on the available evidence. The process of judging and evaluating the quality of performance and depth of learning is important to promoting learning. Teachers identify the task-specific assessable elements to make judgments against specified standards on evidence.	**Achievement standard** In this unit, assessment of student learning aligns to the following components of the Achievement standard. **Receptive modes (listening, reading and viewing)** By the end of Year 6, students understand how the use of text structures can achieve particular effects. They analyse and explain how language features, images and vocabulary are used by different authors to represent ideas, characters and events. Students compare and analyse information in different texts, explaining literal and implied meaning. They select and use evidence from a text to explain their response to it. They listen to discussions, clarifying content and challenging others ideas'. **Productive modes (speaking, writing and creating)** Students understand how language features and language patterns can be used for emphasis. They show how specific details can be used to support a point of view. They explain how their choices of language features and images are used. Students create detailed texts elaborating on key ideas for a range of purposes and audiences. They make presentations and contribute actively to class and group discussions, using a variety of strategies for effect. They demonstrate understanding of grammar, make considered choices from an expanding vocabulary, use accurate spelling and punctuation for clarity and make and explain editorial choices.
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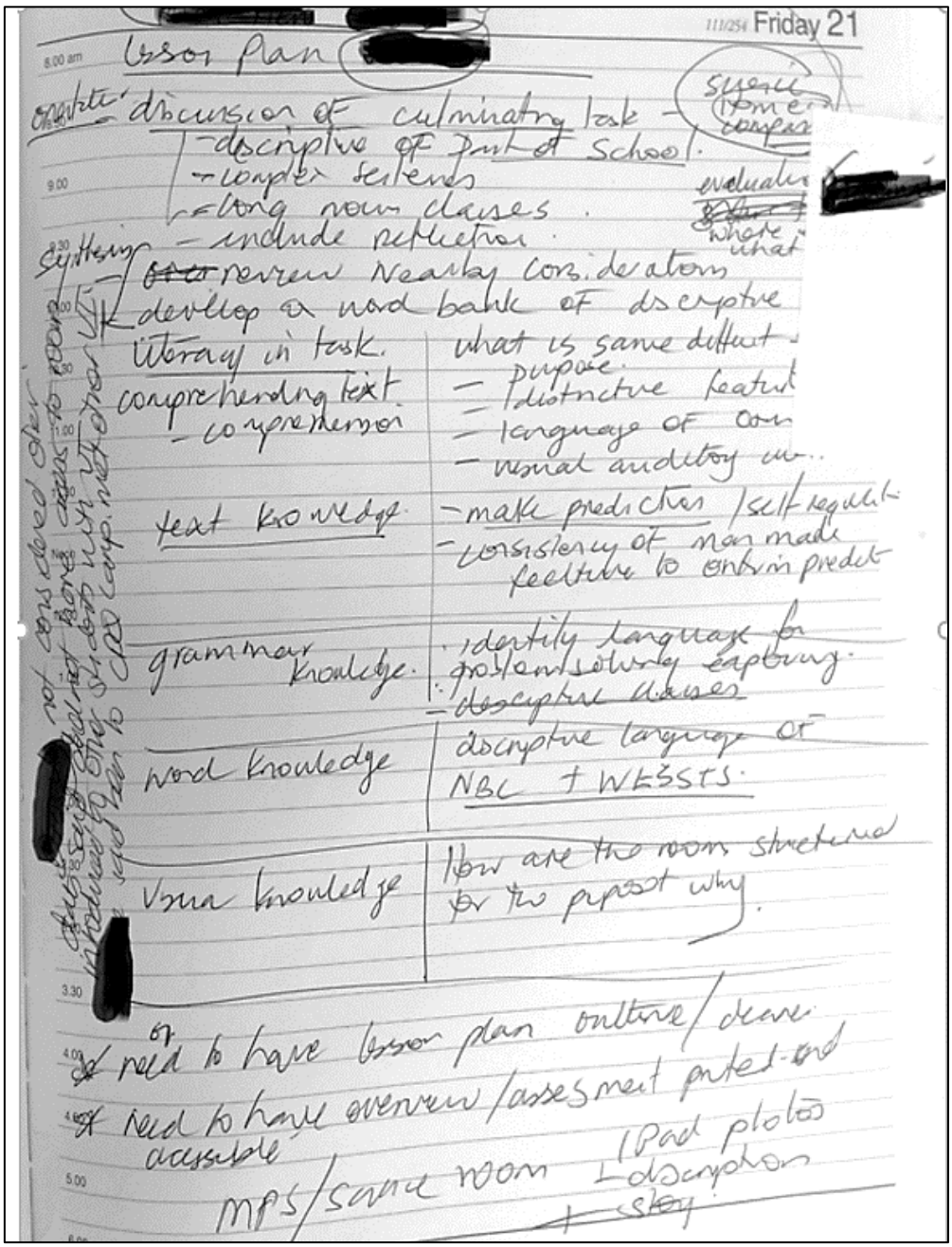
Appendix G

Lesson Plan: Josie



Appendix H

Social skills program (Annie)

Student: [redacted]
Date: 14/03/2017

Lesson overview

O&M teaching and learning goals (O&M report Semester 1, 2016).

Social and self-awareness.

[redacted] is experiencing a number of difficulties in social situations particularly around locating, tracking and identifying friends outside of 1 metre, acknowledging by name friends outside of 50 cm, awareness of friendship groups and social spaces, entering and exiting social spaces, and identifying when and from whom help can be sought in social situations. [redacted] requires significant additional supports and programming around the personal and social domains.

With adult modelled verbal support [redacted] appeared able to interpret simple environmental and social texts in the familiar school environment.

With significant adult modelled verbal support [redacted] appeared able to explore relationships through play and group experiences, and identify positive ways to initiate, join and interrupt conversations with adults and peers.

[redacted] is working towards:

- Initiating a play and social interaction
- expressing her emotions constructively in interactions with others, and
- approaching new situations with confidence.

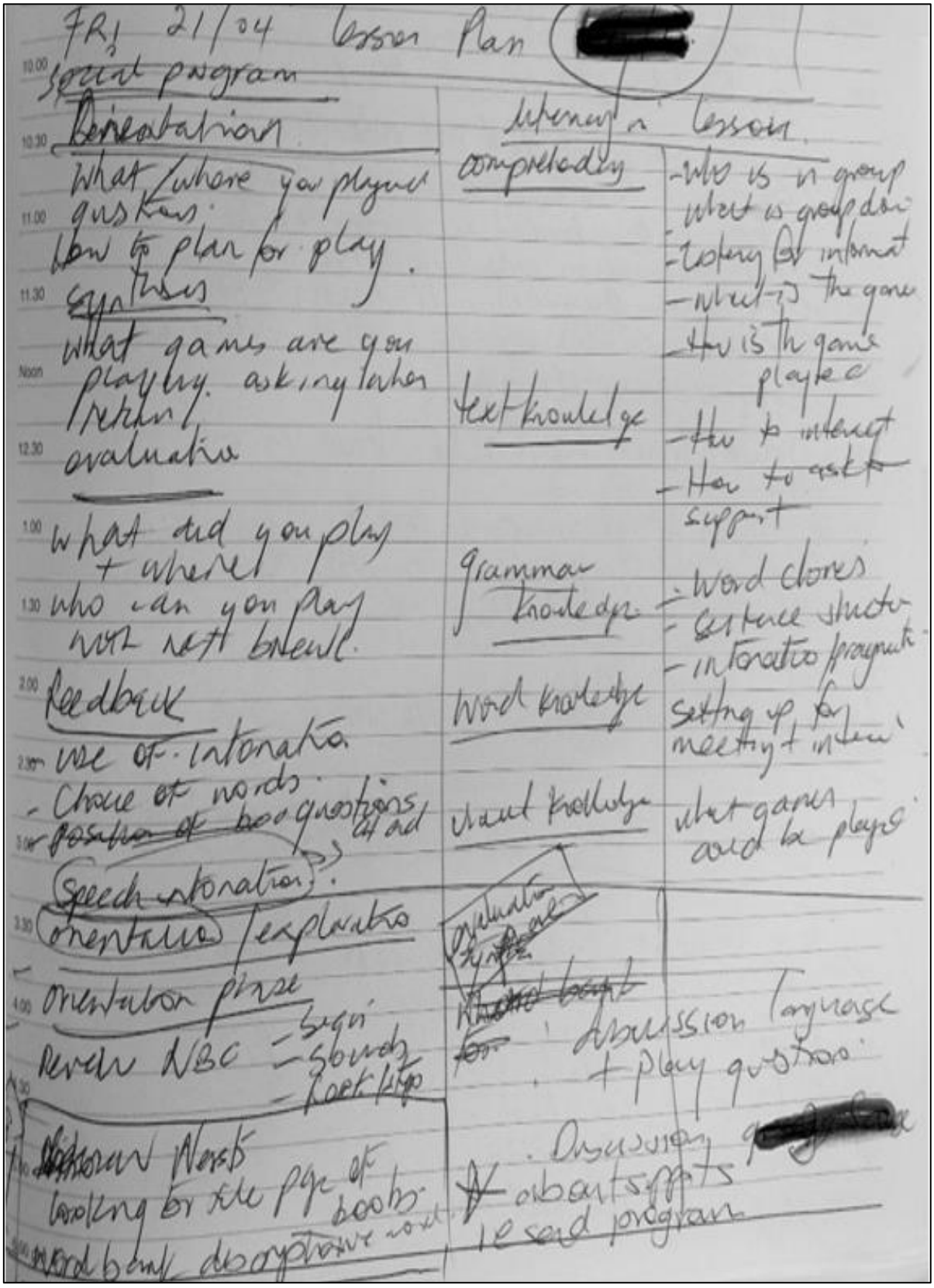
Curriculum links	**General Capabilities- Personal and Social Capability Level 2** - show awareness of the feelings and needs of others - identify ways to care for others, including ways of making and keeping friends - express their emotions constructively in interactions with others **General Capabilities- Personal and Social Capability Level 1b** - identify positive ways to initiate, join and interrupt conversations with adults and peers - identify cooperative behaviours in a range of group activities - practise solving simple interpersonal problems, recognising there are many ways to solve conflict - discuss ways in which they can take responsibility for their own actions **English Year 1 Language for interaction** - Explore different ways of expressing emotions, including verbal, visual, body language and facial expressions **ACELA1787**, - Understand that language is used in combination with other means of communication, for example facial expressions and gestures to interact with others **ACELA1444**, **English Foundation- Literature and context** - Recognise that texts are created by authors who tell stories and share experiences that may be similar or different to students' own experiences **ACELT1575**

Lesson Objective	Student will: • identify positive ways to initiate, join and interrupt conversations, and social and play activities
Evidence of learning	Can the student: • Locate, initiate, join and interrupt a friendship group or activity
Observations	Does the student: • Identify a range of strategies to locate, initiate, join and interrupt a friendship group or activity
Resources	Focus Questions (see below)
Key words metalanguage	Friends, join, find, play, games, computer lab, playground, library.
Teaching and Learning sequence	
Opening lesson Indirect teaching	Prior to play times establish with [redacted] by saying: I wonder who and where you might like to play with? State where you will be located for example, I am going to wait next to the playground. (**Please Note:** This is not a supervision duty but a learning opportunity and the adult should be modelling the play or strategies not shadowing [redacted]. The adult's function is to use the question prompts to build [redacted]'s ability to implement the social strategies. The adult should identify with [redacted] a consistent location where the adult can be found so that [redacted] can return for assistance with problem solving. Encourage [redacted] to move independently to the location and the adult communication partner remains at a set location.
Body of lesson Direct teaching Cooperative teaching	Ask [redacted] **Focus questions:** What game do you think you might like to play? Where are you going to play this? Who do you think might be there that you can play this game with? Where might you find your friends? How could you find your friends? - Ask a teacher, ask another friend? - Go to the area and have a look? Identify with [redacted] where the teacher on duty is located. State: I can see that the teacher on duty is near the… Say to [redacted] I wonder what questions you could you ask your friends when you find them? For example, Do you want to play?

	What are you playing? Can I play? Where is …? If [redacted] goes to the undercover area or library model a think aloud of where you can see any year one students by stating: I can see that Caleb is sitting next to the pole… I can see that Chloe is reading a book on the big chairs.
Closing lesson Cooperative teaching	If [redacted] was unable to find friends in the playground during eating time model to [redacted] questions to ask of her friends that she is sitting next to: What did you play? Where did you play? Who did you play with?

Appendix I

Lesson Plan: Annie Social Skill Development



Appendix J

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Appendix K

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