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Self-Confidence Levels in Sequential Learning Versus Structured Discovery Cane Travel, Post Orientation and Mobility Instruction: A Comparison Study

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Concordia University–Portland
College of Education
Doctorate of Education Program

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Self-Confidence Levels in Sequential Learning Versus Structured Discovery Cane Travel, Post Orientation and Mobility Instruction:
A Comparison Study

Merry-Noel Chamberlain
Concordia University–Portland
College of Education

Dissertation submitted to the Faculty of the College of Education
in partial fulfillment of the requirements for the degree of
Doctor of Education in
Transformational Leadership

Rinyka Allison, Ph.D., Faculty Chair Dissertation Committee
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Concordia University–Portland
2019
Abstract

Sequential Learning (SL), the medical model of Orientation and Mobility (O&M), was designed for blinded WWII veterans in the 1940s. This preeminent curriculum monopolized the O&M profession, creating a paradigm paralysis, until Structured Discovery Cane Travel (SDCT) made its official debut in 1997. The conceptual framework for this study is Glasser's choice theory (1998) whereby ideas or systems of belief direct or oversee behavior, and this principle holds true for both O&M professionals and individuals who are blind or visually impaired (consumers). A comparison study answered the research question; that is, at what distance and frequency do consumers travel independently post-instruction and how does this differ between the two curriculums? Data was collected through a quantitative study in which 40 participants (20 SL, 20 SDCT) voluntarily responded to an electronic survey. Because of their increased frequency and distances traveled and their decreased need for additional training, study results revealed SDCT consumers’ self-confidence is higher than SL consumers by 32%. In addition, this study discovered when sighted guide instruction commences prior to introduction of the long, white cane (as in the SL curriculum); self-confidence is hindered and leads consumers toward the Custodial Paradigm. However, when instruction of the long, white cane and problem-solving is paramount (as in the SDCT curriculum); the foundation for ongoing successful O&M post-instruction is likely whereby consumers are lead toward the Independence Paradigm.

Keywords: orientation and mobility, self-confidence, sequential learning, structured discovery cane travel
Dedication

To my Lord, Jesus Christ, for guiding me through this journey
and to my family and friends who waited patiently for me to return.
Acknowledgements

Since I began college as a nontraditional student, my educational journey was challenging at first. However, with the guidance of Dr. Bruce Ouderkirk, I was able to set my goals high. He believed in me when I did not believe in myself, and I am ecstatic to acknowledge his abundance of patience with my dreadful inadequacy in English. For that, I will forever be filled with gratitude.

Through the Nebraska Commission for the Blind and Visually Impaired (NCBVI) and Dr. Ruby Ryles, I was engrossed with the profession of Orientation and Mobility (O&M). Unbeknown to me at the time, O&M quickly became a pivotal component in my life. The leadership of my Dissertation Committee, Dr. Rinyka Allison, Dr. John Mendes, and Dr. Angelo Letizia, helped make my dreams of conducting this study a reality. I am grateful for their guidance, support, and encouragement.

My husband, Marty, the love of my life, kept the home fires burning during my long educational quest and throughout this journey, my daughters, Royene and Ashleah, unintentionally grew up faster than necessary. With their love and support, I believed my dream to complete this study was possible. Also, words cannot express how much I appreciate the encouragement I received from my family and from my dear, dear friends . . . who will forever be considered family . . . Katie, Vicki, Cheryl, Cassandra, Lynda, Sara, Nancy and Dan. You all mean the world to me! Thank you!
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Chapter 1: Introduction

Approximately 99% of today’s Orientation and Mobility (O&M) instructors who provide training in rehabilitation facilities for blind or visually impaired individuals across America use the Sequential Learning (SL) medical curriculum. This curriculum was designed in the 1940s for blinded World War II veterans (Joffee & Rikhye, 1997) and is clearly outlined in A Veterans Administration Medical Film (1952, 1952b) in which instruction was medically oriented with doctors considered the authorities and gatekeepers (Baldwin, 2016). Foot travel (A Veterans Administration Medical Film, 1952b), known today as Orientation and Mobility, is one of several rehabilitation training services available to individuals with visual impairments in the United States. However, Baldwin (2016) states this profession “never had a philosophical basis upon which to found an entire discipline” (p. 42) nor was opportunity given to “blind individuals who were experts in nonvisual skills” to offer their input (Cutter, 2007, p. xxiii). Furthermore, the curriculum was created with a sighted bias for veterans who were not born blind and without protocols or content consideration for the congenitally blind (Cutter, 2007). “Obviously, none of the veterans who lost their vision during the war were born blind” states Cutter (2007, p. 8).

Many citizens (sighted, blind, or low vision) are unaware of O&M services, according to the National Eye Institute (as cited in Casten, Maloney, & Rovner, 2005) and many, including educators, do not know the definition of O&M. Thus, they are unaware that for individuals with visual impairments, O&M is the foundational skill necessary which forms the basis of future independence and autonomy (Castellano, 2010) to be active and live self-sufficient lifestyles (Geruschat, & De L’Aune, 1989). Today, one of the most critical aspects of human abilities is to have the necessary skills to maneuver within one’s home and community. Limitations of this essential life necessity can negatively impact one’s vocational and social opportunities as well as
one’s adjustment to being visually impaired (Long, 1990). This is contrary to “earlier centuries, when not only blind people but the great majority of others seldom ventured far from their native soil” (Koestler, 1976, p. 303). The industrial revolution created opportunities of economic betterment with the growth of social mobility and “for blind people to be members of the larger society, freedom of movement has become a must” according to Koestler (1976, p. 303). Therefore, the goal of O&M is to enable individuals with visual impairments to “enter any environment, familiar or unfamiliar, and to function safely, efficiently, gracefully, and independently” (Hill & Ponder, 1976, p. 1).

**Distance Vision Categories of Visual Impairments**

In America, it is estimated 26 million citizens will be either visually impaired or blind by 2030 due to aging and demographic changes, according to the Center for Disease Control and Prevention (CDC) (2017). The steady, exponential increase of older individuals with visual impairments is considered the most significant factor in the growing demand and abundant need for O&M instruction (Orr & Rogers, 2001). Age-related macular degeneration, diabetic retinopathy, cataracts, and glaucoma are the chief eye diseases leading to uncorrectable blindness by way of medicine, surgery, glasses or contact lenses (Center for Disease Control and Prevention [CDC], 2017) with higher levels of glaucoma and diabetic retinopathy found in African Americans, Hispanic, Latinos, and Native Americans (Orr & Rogers, 2001).

Consumers diagnosed with visual impairments are placed into categories based on their visual acuities. For example, legally blind individuals have a visual acuity of 20/200 or worse in their better eye, with correction, or have a combined (meaning both eyes) visual field of 20 degrees or less (CDC, 2017; Social Security Administration, 2018) even if their visual acuity is 20/20 within their field of view. Keep in mind that vision is directional with primarily a
foreground modality much like a searchlight beam that may sweep over an area (Kratz, Tutt, &
Black, 1987). About 90% of consumers have various degrees of vision loss, leaving only about
10% as totally blind (American Optometric Association, 2018; Blasch, Wiener, & Welsh, 1997;
Koestler, 2004; Orr & Rogers, 2001; Stein, Slatt, & Stein, 2000). Thus, most individuals with
vision loss are considered *legally blind* with unique functional limitations requiring
individualized instruction. Table 1 provides a breakdown of the categories of visual impairments
based on distance visual acuities.

Table 1

<table>
<thead>
<tr>
<th>Visual Categories Based on Distance Visual Acuities</th>
</tr>
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<tbody>
<tr>
<td>20/20 or better</td>
</tr>
<tr>
<td>Normal or Near Normal</td>
</tr>
<tr>
<td>or or Partially Sighted</td>
</tr>
<tr>
<td>Normal</td>
</tr>
</tbody>
</table>

(American Optometric Association, 2018; Blasch et al., 1997; Koestler, 2004; Stein et al.,
2000).

Normal vision is considered 20/20 which is what one person can see at 20 feet, this person can also see at 20 feet. Mild visual impairment is 20/30 to 20/60 which means a person with this acuity may simply need to step a little closer to see objects that a person with 20/20 can see. Moderate visual impairment is 20/70 to 20/180. A person who falls into this category is one
who must be as close as 20 feet from the visual target while a person with normal vision can be 70 to 180 feet away.

Legal blindness begins when a person’s visual acuity is worse than 20/200 and can be labeled as severe or profound. Severe is a visual acuity of 20/200 to 20/480 while profound is anything worse than 20/500. A person who has profound visual loss may only count fingers very close to the eye and/or may have some light perception.

**The Visible Minority**

The visible minority, identified throughout this document as consumers, is a diverse group of individuals with visual impairments who used to, and many still do, consider themselves as society considers them: inferior, hopeless, helpless, dependent, objects of pity, without the ability or the right to employment, according to Baldwin (2016), Blasch, et al. (1997), and Omvig (2002). When negative stereotypes are evoked, consumers worry about conforming to those stereotypes without self-awareness (Dweck, 2008). Vaughan (1993) states that at the beginning of this century, the needs of minorities with disabilities were widely noted and just as in any other group, consumers are equally diverse. Individuals who exhibit similar characteristics of a minority group involuntarily and automatically receive the status implications and treatment associated with membership (Salisbury, 2018).

However, when those individuals have positive mindsets, their performance is not disrupted by stereotypes (Dweck, 2008). Therefore, consumers may be well-educated, employed, live independently and/or have families and participate within society, while others may live with their parents or relatives, be unemployed, and/or depend on public assistance (Vaughan, 1993). This visual minority group, when given the proper training such as O&M, can and do compete equally with their sighted counterparts to become taxpayers rather than
surviving on Social Security Disability checks (Omvig, 2002). Overall, society has seen gradual emancipation of consumers (Koestler, 2004).

**What is Orientation and Mobility?**

Since the beginning of human history, people who are blind have used a stick or type of cane for independent travel (Bryant, 2009; First Steps, n.d.; Foundation Fighting Blindness, n.d.; Kim & Wall Emerson, 2012; Roberts, 2009; Sauerberger & Bourquin, 2010; Williams, 1967). Overall, the task of the consumer “is to maintain contact with the horizontal surface, while avoiding contact with the vertical ones” (Dodds, 1993, p. 50). Research informs us that Lieutenant James Holman (1786-1857) was a *self-taught navigator* who used a walking stick with a metal tip (to prevent the wood from splitting) and this tool was considered “standard strolling equipment for gentlemen of the day” (Roberts, 2009, pp. 75–76). According to Lieutenant Holman, the metallic clicking sounds from the tip of his walking stick offered a quick burst of noise (i.e., *echolocation*) which he used for detection of walls and streets (Roberts, 2009). For consumers, the metal tip of the cane can “provide echo-ranging cues and force-impact information” about ground textures (Pogrund & Griffin-Shirley, 2018, p. 178) as well as provide information about the surrounding environment. Therefore, “tap tap tap . . . [is] the sound of independence” (Winter, 2015, para. 1).

Today, we know O&M as the skill of using the long, white cane for terrain interpretation, locating, and negotiating around obstacles, along with performing elevation changes in a safe and efficient manner (Sauerberger & Bourquin, 2010). However, for centuries prior to the 1960s, the instruction or curriculum focused on O&M was unknown (Williams, 1967). According to First Steps (n.d.), “there were no formal methods; each person figured out a practice that worked for their own needs.” As far back as the 1870s in England Levy expressed
the advantages of mobility skills for consumers (Williams, 1967). Levy “laid out theories for cane use and design” which are similar to those used today and, as stated by Levy in 1872, the importance to everybody “of acquiring the power of walking the streets without a guide can scarcely be exaggerated” (First Steps, n.d.; Koestler, 1976, p. 302). Later, in 1910, an American educator of individuals with visual impairments, Dr. Edward Allen, extolled the overall German training techniques for consumers (Williams, 1967). Lions Club International adopted the white cane over a black cane in the early 1930s due to its visibility to motorists and promoted white canes as a national program (Foundation Fighting Blindness, n.d.). America was well into World War II before the cane was utilized in an O&M training program for wounded veterans and, of the four military hospitals hosting blind rehabilitation programs, only Valley Forge (and then later Hines) offered the white cane as a tool in mobility instruction (Williams, 1967). Therefore, the history of O&M in the United States is moderately short, beginning with the rehabilitation of blinded war veterans after WWII (Baldwin, 2016).

*Orientation* has two interrelated metaphorical senses; the first focuses on where one is in location relative to the world (positioning and awareness) and the second is the knowledge awareness which dictates a direction leading to targets or desired destinations (Sarid, 2012). *Mobility* is the ability to facilitate movement (Jacobson, 1993) by any means such as crawling, scooting, or perhaps moving with the aid of a wheelchair or crutches. Simply put, orientation is knowledge of where one is within space while mobility is efficiently and safely maneuvering from one location to another (Pogrund & Griffin-Shirley, 2018). The teaching of such concepts, techniques and skills to consumers to *independently* travel efficiently, gracefully and safely in a myriad of locations and situations is the profession of Orientation and Mobility (Aditya, 2004; Cutter, 2007, Jacobson, 1993).
Therefore, the practice of O&M ensures that consumers are provided opportunities to achieve maximum independence (Ballemans, Kempen, & Zijlstra, 2011; Leonard, 1968) through self-dependent mobility (Malik, Abd Manaf, Ahmad, & Ismail, 2018; Williams, 1967) by using the long, white cane as (a) a symbol of independence (Heinen, 2014; Omvig, 2005); (b) a cherished and positive tool for autonomy (Vaughan, 1993); (c) a probe to navigate and identify the environment (Foundation Fighting Blindness, n.d.); and (d) identification that the user’s vision is impaired (Ballemans et al., 2011; Kaiser, Cmar, Rosen, & Anderson, 2018). The O&M instructor recommends an appropriate cane “while accounting for factors such as height, gait, walking speed, proprioceptive and tactile sensitivity, travel environments and personal preferences” (Kaiser et al., 2018, p. 11). Pogrund and Griffin-Shirley (2018) state if consumers are well oriented to their surroundings but do not have the skills to move about efficiently and safely, they cannot be independent travelers. They add if consumers have effective mobility skills but become easily disoriented, independent travel is hindered. Overall, O&M establishes and provides instruction to consumers on how to perform safe and purposeful movements.

Ultimately, the goal of O&M instructors is not only to assist consumers in gaining the skills necessary to walk independently from one point to another, but it is also to prepare them to travel in a safe manner to desired locations (Aditya, 2004). While O&M is considered the core skill necessary for daily living (Museum of the American Printing House for the Blind, n.d.), others stress the goal of O&M is to make the consumer as indistinguishable as possible (Dodds, 1988). Furthermore, movement is necessary to stimulate curiosity and, more importantly, create connections to arouse interactions with others (Castellano, 2005). When that happens, consumers experience “the most important of human abilities” (Long, 1990, p. 90), which is the ability to travel whenever and however they decide (Maurer, Bell, Woods, & Allen, 2007).
Therefore, consumers’ self-confidence is considered when addressing the psychological aspects of independent and safe travel whereby those who have low self-confidence may be more inclined to be involved in accidents compared to consumers who have higher levels of self-confidence (Aditya, 2004). Thus, building confidence and self-efficacy is a critical component in O&M.

**What is Sighted Guide?**

*Sighted guide* is a simple accommodation in which the leader walks about a step ahead of the consumer who holds the guide’s arm approximately an inch above the bent elbow (Ensing, 2016). The guide can direct the follower efficiently by merely moving the elbow like a rudder on a boat (Ensing, 2016). Keep in mind the guide is not to grab the arm of the consumer; instead, let the consumer be the instructor (Vaughan, 1993) who can quickly provide direction to a novice guide (Foundation Fighting Blindness, n.d.). Both need to walk at a pace which is comfortable whereby the guide is not pulling or dragging the consumer, and the consumer is not pushing the guide (Foundation Fighting Blindness, n.d.).

Some consumers and O&M instructors consider sighted guide as a “convenient” mode of travel (Ensing, 2016). Novice consumers who have rudimentary travel skills use sighted guides more often than those who have advanced O&M expertise, with the latter only using guide accommodations when it is necessary or more convenient (LaGrow & Weessies, 1994). Bickford (1993), a consumer, states:

> A personal guide may range from necessary to helpful to bothersome. As hard as it sometimes is to find help when you need it, sometimes it is harder to get rid of help when you don’t want it any more. . . . The guide then needs only to locate and steer, not to investigate and govern. (p. 72)
Professionals, on the other hand, have deliberated as to which technique is better for consumers: to travel with or without a sighted guide (Blasch et al., 1997; Soong, Lovie-Kitchin, & Brown, 2000). Results of a performance study of 14 participants ages 55 to 89, found no significant differences as to which produced better mobility performance (Soong et al., 2000). Furthermore, participants did not express any bias towards either technique, although they demonstrated quicker walking speeds when not using a sighted guide (Soong et al., 2000).

Over the years professionals have changed the O&M lexicon so that human guide has replaced sighted guide (Jacobson, 2013) although sighted guide is still the norm found in reference materials (Foundation Fighting Blindness, n.d.), storybooks and training manuals (Crow & Herlich, 2012; Fazzi & Barlow, 2017; Flaherty, Hawkins, & Heaton, 1997; Halpern-Gold, Adler, & Faust-Jones, 1988; Hill & Ponder, 1976; Ho’opano, n.d.; LaGrow & Weessies, 1994; Pogrund et al., 1995; Scholl, 1986; Schwartz, 1987; Thomas, 1980; Vrabel, 2015; Wainapel, 1989; White, 1991). When researching Sighted Guide on Google in February of 2018, 17,000,000 results were found in 0.51 seconds, while Google Scholar found 147,000 results in 0.04 seconds. The term Human Guide produced even more results on both Google and Google Scholar (1,180,000,000 in 43 seconds and 5,280,000 results in 0.12 seconds, respectively).

Some professionals believe a guide must have sight (American Foundation for the Blind [AFB], 2018a; Ensing, 2016), while others contend that any competent traveler (i.e., someone who has better mapping capabilities and travel skills) may serve as a guide regardless of the guide’s visual acuity (Chamberlain, 2015). For this study, guides will be referred to as sighted guide(s) because in the conventional approach, guides are usually sighted (Cutter, 2007).
Background of the Problem

Within the professional field of O&M instructors, as with learning theorists, there has been an ongoing debate as to which is better between the two educational training curriculums: the guided approach/sighted paradigm—Sequential Learning (SL), or the discovery approach/cognitive learning theory—Structured Discovery Cane Travel (SDCT) (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018). Even though detailed descriptions of O&M training programs within literature are scarce (Balleman et al., 2011), training goals of both approaches include facilitation of safe and independent travel within the community via optimal use of individual abilities to maintain previous or new activities (Zijlstra et al., 2009). However, the two curriculums have distinctly different paradigms (Aditya, 2004): sighted versus blind instructors (Baldwin, 2016; The Debate Over Standards, n.d.); visual versus cognitive (Mettler, 1995); allocentric versus egocentric (Baldwin, 2016), traditional or conventional versus nontraditional (i.e., Promotional Model) (Cutter, 2007); custodial versus independent; and Sequential Learning (SL) versus Structured Discovery Cane Travel (SDCT) (Aditya, 2004; Blasch et al., 1997; Fazzi & Barlow, 2017; Pogrund & Griffin-Shirley, 2018). Cutter (2007) adds the conventional O&M focuses on a top-down approach which means “out of concept comes the experience” rather than bottom-up which is “driven by sensory and motor experience” so that “out of the experience comes the concept” (pp. 11–12).

According to Baldwin (2016) and Joffee & Rikhye (1997), the traditional O&M curriculum has historically focused on recipe-driven, time-based hierarchy sequences of technical and cognitive skills resulting in limited success, which demonstrates that this profession is not teaching the whole human being. Malik, et al., (2018) add, although the O&M
syllabi includes various techniques used over 50 years, “a review of O&M curriculum is needed” (p. 189). However, “to date, research has not been conducted to determine the efficacy of one approach over another” (Fazzi & Barlow, 2017, p. 96).

Although the above paradigms are ongoing, the purpose of this study is to focus on the curricula of the two instructional O&M methods while keeping in mind that “curricula do not always represent promising practices in a field” (Wall Emerson & Corn, 2006, para. 27). In particular, this study addresses the pivotal timing of sighted guide instruction; how that affects distances traveled and how often consumers venture independently away from their home base. Cutter (2007) states when there is a priority placed on the instruction of sighted guide “do more to delay the process of independent movement and travel than to facilitate it” (p. xxii). Since people’s actions represent their beliefs (Schreiber & Moss, 2002), then demonstrating the measurement of consumer’s independent travel post-training may coincide with the belief of their O&M abilities and skills, thus representing their self-confidence levels.

Orientation & Mobility instructors create lesson plans which, based on their own education, follow either assumption (a) specific skills are sequenced such that each needs to be mastered before another skill is introduced (Baldwin, 2016; Blasch et al., 1997) as in SL or (b) skills are transferrable such that they may be learned in one location and used in another (Bailey & Head, 1997) as in SDCT. Sequential Learning, the traditional curriculum, was designed by sighted people for blinded World War II veterans at Valley Forge and Hines (Mettler, 1995; Miyagawa, 1999). It was the belief of Chief Russell Williams that techniques established in the past (i.e., the use of a stick for travel) by individuals who were blind could help future veterans be successful (Welsh, 2005b). Because the orientors (the term used for O&M instructors during WWII) and patients (blinded veterans) (Miyagawa, 1999) were formerly sighted with
preconceived experiences, concepts, and skills necessary to travel safely as sighted people—they already understood distance, traffic flow, intersections, public transportation, sidewalk navigation, street signs, and traffic lights—they essentially were learning how to do the same tasks without sight (Castellano, 2010).

Most newly blinded WWII veterans were physically intact with mature cognition and visual memory comprehension (Pogrund & Rosen, 1989). Therefore, O&M training skills were performance-based focusing on environments with increasingly complex conditions and “this sequence of skill development has been proven to be highly effective for the majority of adventitiously blind adults” as stated by Pogrund and Rosen (1989, p. 431). Chief Williams and Richard Hoover, the SL curriculum developer according to Miyagawa (1999), believed that complicated techniques in O&M needed to be presented in step-by-step components with enough time between lessons, so patients could absorb the new information and master self-confidence in those techniques (Welsh, 2005, 2005b). Furthermore, Chief Williams believed that the instructors needed to be former servicemembers with “manly” interests because the patients were mostly men (Pogrund & Nora Griffin-Shirley, 2018; Welsh, 2005b) which resulted in the development of techniques for males that created limitations for females who have different physical characteristics.

Structured Discovery Cane Travel (SDCT), the alternative approach, was adopted by and for blind people because of concerns from the blind community during the same time the VA was developing its training program for veterans in the 1940s (Baldwin, 2016; Ferguson, 2007). It is believed that discovery learning was the brainchild of Dr. Kenneth Jernigan (Director of Iowa Department for the Blind, 1958-1978), who infused the discovery philosophy into its training programs (Bell & Mino, 2011). Discovery learning is “a teaching strategy in which the
material to be learned is uncovered by the learner in the course of solving a problem or completing a task” (Fazzi & Barlow, 2017, p. 254). In O&M, discovery learning is action-based through transformational knowledge (Mezirow, 1991) by way of *teachable moments* and hands-on experiences. Teachable moments are educational opportunities to engage in real-life teaching during new and unexpected encounters to ensure a stronger personal impact for the consumer that will help stimulate long-lasting concepts or memory of the learning experience (Hansen, 1998). Iowa became an experimental site to embrace the validity and viability of the discovery approach to the world of rehabilitation when Jernigan became director of the Iowa Commission for the Blind in 1958 (Omvig, 2002). Ten years later, Jernigan received the Presidential Citation by then-President Lyndon Johnson for his pioneering work in Vocational Rehabilitation (VR) for individuals who were blind or visually impaired (Omvig, 2002). Jernigan, who was a successful blind cane traveler stated, “our approach is fundamentally based upon the belief that techniques used by sighted teachers and the alternative techniques which we use are equally effective and that ours are in no way inferior” (Morais et al., 1997, p. 2).

This philosophy significantly and positively impacted rehabilitation, spreading to Nebraska, Colorado, Louisiana, Minnesota and later becoming internationally noticed (Aditya, 2004; Bell & Mino, 2011). Alan Dodds, a British O&M instructor, coined the term *Structured Discovery* in 1984 when he described his cognitive problem-solving mobility experience with an agency-trained blind O&M instructor at the Nebraska Commission for the Blind (Dodds, 1984). Dodds (1984) adds that rather than receiving sighted information second hand, consumers were permitted to make mistakes and actively explore the environment to determine solutions without any external assistance.
History

Sequential Learning (SL), the medical model of O&M, was designed to assist blinded WWII veterans in the 1940s and this curriculum has monopolized the profession without being challenged (Baldwin, 2016) until Structured Discovery Cane Travel (SDCT) made its official debut in 1997. Other professions, such as occupational therapy, use a discipline foundation which is philosophically and clinically supported (Baldwin, 2016). Yet, the entire SL O&M discipline evolved through a medical model without a philosophical basis to prove its effectiveness and without a rehabilitation curriculum based on how to use cane techniques to maximum advantage (Baldwin, 2016; Koestler, 2004). The traditional SL curriculum was focused on health recovery and surgery (Welsh, 2005) which created a design limitation because the primary participants were sighted military-trained soldiers prior to becoming adventitiously visually impaired (Geruschat & De L’Aune, 1989). Having prior visual experiences help consumers understand O&M concepts, as well as environmental features whereas for those with congenital visual impairments, need a plethora of hands-on experiences (Kaiser et al., 2018) in order to comprehend the environment.

In 1997, Louisiana Tech collaborated with the Louisiana Center for the Blind (which uses the SDCT curriculum), to develop an educational psychology program that draws its principles from a cognitive learning theory approach (Bell & Mino, 2011; Schroeder, 1997). Consumers, both military and civilian, receiving SDCT training are instructed to master simple cane techniques; then their lesson quickly shifts to opportunities focused on problem-solving skills (Mino, 2011) which, according to Dodds, (1988), is essentially a mental processing skill. It is through this cognitive growth method that consumers learn to develop self-confidence in their independent travel in a way that is meaningful to them (Tigges, 2004).
Problem Statement

Currently, it is uncertain as to which curriculum, SL or SDCT, yields the highest level of self-confidence post-O&M instruction. After an extensive literature review, knowledge of a comparison study between SL and SDCT has been scarce (Zijlstra, Ballemans, & Kempen, 2012) and according to Fazzi and Barlow (2017), “research has not been conducted to determine the efficacy of one approach over another” (p. 95). However, to avoid wasting governmental resources, a survey evaluating activity post-training of the Minnesota State Services for the Blind (MSSB), Blind: Learning In New Dimensions, Incorporated (BLIND, Inc.), and Duluth Lighthouse for the Blind (DLB) was conducted in 1991 (Vaughan, 1993). Results clearly demonstrated that BLIND, Inc., utilized government resources to the fullest while using discovery learning curriculum, resulting in greater self-confidence leading to more employment outcomes and successful independent living (Vaughan, 1993) (See table 5). Since SDCT has now been available to consumers for twenty years, it is necessary to conduct sound research investigating the two groups of consumers (SL and SDCT), post-O&M instruction. Thus, research which compares O&M performance among consumers who offer a difference in variables is necessary and this research can positively impact O&M services throughout this country and perhaps around the world.

Conceptual Framework for the Problem

Glasser’s choice theory is the conceptual framework for the problem because it is an internal control psychology the direction of people’s lives are directed by how and why people make choices (Glasser, 1998). Consumer choice emerged in the 1990s as an essential component of VR services (Kosciulek, 2004) for when there is active involvement in decision making, an increase in training effectiveness is likely (Coulter, Entwistle, & Gilbert, 1999).
However, professionals who determine what is right for the instructor and what the instructor believes is right for the consumer often follow a tradition that has monopolized (Glasser, 1998) the O&M profession for decades. When individuals are not given informed choice, they conclude their feelings and actions are controlled by others, thus removing personal freedom of choice, which according to Glasser (1998) is vitally needed. Thus, when personal freedom of choice is removed, individuals are lead toward making risky decisions regarding their future independent movement (Cutter, 2007).

Nature of the Study

Consumers use O&M methods, either sighted guide or through utilization of the long, white cane, when maneuvering within and beyond their community. Chapter 2 reviews previous O&M studies. However, there is a lack of data supporting the effectiveness of one curriculum over the other leading to a dispute between the professionals (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018). To offer consumers clear, researched-based options, so they are able to obtain informed choice, a quantitative comparison study among consumers, post-training, is essential to discover any differences between the SL and SDCT curriculums. This self-reported study consists of consumers between the ages of 20 and 70 who received O&M instruction within the United States. Because the consumer population pool is limited, O&M research is a challenge (Pogrund & Griffin-Shirley, 2018). All potential avenues to seek participants were utilized such as contacting professional and consumer organizations, private and state rehabilitation training centers, social media websites, the National Research and Training Center (NRTC) which is a registry of volunteer consumers willing to participate in research (Crudden, Cmar, & McDonnall, 2017), and the VA Visually Impaired Service Team (VIST) Coordinators.
Research Question and Hypotheses

Question

Regarding a comparison of the two Orientation and Mobility (O&M) training curriculums, that is (a) Sequential Learning (SL) and (b) Structured Discovery Cane Travel (SDCT), generally at what distance and frequency do consumers travel independently post-training and how does this differ between the two curriculums?

Hypotheses

It is the researcher’s hypothesis that consumers’ self-confidence levels of independent travel post-training is based on the first O&M lesson they received in rehabilitation facilities. Sequential Learning (SL) curriculum begins with sighted/human guide procedures while the Structured Discovery Cane Travel (SDCT) curriculum focuses on techniques of the long, white cane. Pivotal timing of these instructional goals is instrumental whereby affecting self-confidence levels and this relationship can be exposed through a comparison study focused on consumers’ independent travel habits post-O&M instruction. The basis for this hypothesis is data collected from Annual Disability Statistics Compendium (2015), Activity After Training study (Vaughan, 1993), along with the literature review discussed in Chapter 2, whereby sighted guide accommodations promote the custodial paradigm while the long, white cane encourages the independence paradigm.

Research Objectives

The objective of this comparison study is to determine which curriculum of O&M instruction, (a) Sequential Learning (SL) or (b) Structured Discovery Cane Travel (SDCT), yields the highest level of self-confidence for consumers within the United States. Considering the method of how instruction is delivered or evaluated has been virtually ignored by scholarly
researchers (Long, 1990), the fundamental objective for conducting this study is to determine if the timing of sighted guide instruction within the curriculum could predict consumers’ levels of self-confidence through their independent travel post-training. Even though sighted guide skills are not prerequisites to learning cane travel (Fazzi & Barlow, 2017; Pogrund & Rosen, 1989), the SL curriculum considers it as such and therefore places the instruction of sighted guide prior to introduction to the long, white cane. Fazzi and Barlow (2017), “support the earliest possible introduction of the long cane” (p. xvii) for purposeful movement, as does the SDCT curriculum in which the long, white cane is introduced to consumers (of all ages) at the very beginning of training. As Pogrund and Rosen (1989) point out, the cane is the mobility tool used by consumers their entire life.

**Purpose of the Study**

A comparison study was necessary to determine which curriculum of O&M instruction, SL or SDCT, yields the highest level of self-confidence for consumers within the United States. Instructional strategies are determined by the skills needed to be learned; motor skills (i.e., cane mechanics) can be obtained through direct instruction while orientation skills (i.e., movement) are best learned via the cognitive approach (Blasch et al., 1997; Mettler, 1995) and hands-on experience. The SL curriculum requires consumers to memorize a route from one location to another prior to performing the activity while the SDCT curriculum uses discovery learning during problem-solving activities along the travel course to acquire and process information (Morais, Lorensen, Allen, Bell, Hill, & Woods, 1997). Both curriculums use *direct instruction* for the initial introduction to the long, white cane; however, according to Mettler (1995), the shift away from direct instruction corresponds with the first lesson in SDCT. Consumers travel best while utilizing their senses to gather information about the environment and to develop cognitive
abilities reasoning and memory, to interpret the sensory information and to develop spatial
orientation (Blasch et al., 1997). In other words, consumers touch the environment with their
cane, while using kinesthetic senses and other senses as they maneuver about, associating
perceptual and sensory experiences (Blasch et al., 1997; Wall Emerson & Corn, 2006).
Environmental features (landmarks) help consumers comprehend their environment which
develops spatial orientation and mental understanding considering they “do not have continuous
visual feedback of objects’ positioning in space” (Kaiser et al., 2018, p. 11). Cutter (2007) adds,
while visual acuity may be fully or partially absent, “sensory acuity is still available” through an
interconnectedness (p. 3) and although the eye may see, “it is the brain that interprets . . . the eye
does not think for itself!” (p. 4).

Research which compares O&M performance among consumers who differ on variables
may impact the O&M curriculum (Long, 1990), as well as put to rest any misconceptions O&M
professionals may have towards each of the curriculums. However, it is unprofessional for
O&M instructors to accept one curriculum to the exclusion of another (Leonard, 1968). The
consumer movement is a natural part of the O&M evolution as a society and “there can be no
doubt that sighted people through the ages have contributed much to the present state of
evolution of O&M training” as well (Aditya, 2004, p. 65). Keep in mind, this was not a study of
sighted versus blind instructors. Nor was the purpose of proving that sighted instructors will not
be necessary even if the consumer movement grows (Aditya, 2004). Many O&M instructors
who are sighted can and do teach SDCT, states Dr. Edward Bell (2018), who adds, at least 30%
of National Orientation and Mobility Certified (NOMC) instructors are sighted. Simply, this was
a comparison study to determine which O&M curriculum yields the highest level of travel
confidence among consumers, post-instruction.
Theoretical Base

Studies discussed in Chapter 2 confirm there is a scarcity of research available, regarding comparisons of the two O&M curriculums, to determine which offers consumers the highest level of self-confidence in independent travel. One primary reason for this limitation is that SDCT has only been in existence since 1997 while SL has been the primary curriculum used since the 1940s. Both offer distinctively different curriculums. However, the theoretical base was to determine if the timing of when sighted guide is introduced to consumers hinders the development of self-confidence and leads consumers to enter the Custodial Paradigm (i.e., learned helplessness), or if there was no significant difference in independent travel post instruction, then both curriculums lead consumers toward the Independence Paradigm. Most studies use evaluator observation or consumer performance to base measurements while others use self-reporting surveys. This study followed suit in using a self-reporting survey because the measurement was evaluated on consumers’ actions after instruction which could then be assessed using quantitative methods. Modern technology supports the use of electronic surveys such as Qualtrics which helps eliminate the need for telephone or face-to-face contacts. Furthermore, Qualtrics is Federal Law Section 508 approved and accessible to the targeted participants who were individuals with visual impairments or blindness.

Definition of Terms


Curriculum. An aggregate list of learning objectives (i.e., skills and knowledge) used to guide instruction (Education Reform, 2015) and these objectives “always reflect the values of those who created it” (Wiles, 2009, p. 14).
**Discovery learning.** “A teaching strategy in which the material to be learned is uncovered by the learner in the course of solving a problem or completing a task” (Fazzi & Barlow, 2017, p. 254).

**Informed choice.** A decision that is made based on knowledge consistent with consumers’ values (Marteau, Dormandy, & Michie, 2001).

**Long, white cane.** Mobility equipment used by consumers to gain surface information from the environment and to identify the user as being visually impaired or blind (Pogrund & Griffin-Shirley, 2018).

**Mobility.** “The capacity or facility to movement” (Jacobson, 1993, p. 3) or actual locomotion to move from one position or location to another (Koestler, 2004).

**Orientation.** Orientation has two interrelated metaphorical senses, the first being “a positioning and awareness of the location where one stands relative to the world” and the second “a horizon of meaning that points the direction towards the desired destination” (Sarid, 2012, p. 245). It is the perception of space and relationships to neighboring objects (Koestler, 2004).

**Orientation and Mobility (O&M) (i.e., cane travel, foot travel).** The profession of teaching concept development, techniques and skills to consumers to help them travel efficiently, gracefully and safely in a myriad of locations and situations which include soliciting assistance (if needed), using community resources (i.e., public transportation), and making decisions (Jacobson, 1993; Pogrund & Griffin-Shirley, 2018).

**Paradigm paralysis.** “The inability or refusal to see beyond current ways of thinking” or “beyond the present situation” in which an organization focuses on what is “supposed to work instead of what really works” (Smith & Rigby, 2015, p. XIV, 71, 73).
Problem-Solving. A “metaphor for most higher-order thinking tasks and for most
assessment tasks that tap higher-order thinking” (Brookheart, 2014, p. 12). This includes simple
decisions to complex followed by selection and implementation of strategies.

Sequential Learning (SL). Lessons which build upon learning targets on previous
lessons and connects with future lessons to advance the understanding of concepts and skills
(Moss & Brookhart, 2012). “The logic for this approach is that learners may learn best when
taught skills in a perceived order of simple to complex” (Fazzi & Barlow, 2017, p. 96).

Sighted guide (aka. human guide). A simple procedure in which the guide walks about
a step ahead of the consumer who holds the leader’s arm above the bent elbow (Ensing, 2016).

Structured Discovery Cane Travel (SDCT). An O&M curriculum which utilizes
transformational knowledge, hands-on experiences, problem-solving opportunities within natural
environments, and personal reflection through teachable moments to develop physical and
mental mapping skills which can be utilized post instruction, outside the O&M lesson.

Assumptions, Limitations, and Delimitations

Assumptions

The primary assumption of this self-reported survey was that participants would respond
honestly with (a) meeting the requirements to participate in the study as well as (b) their answers
to the questions. Other assumptions include that participants would have (c) O&M skills in
addition to (d) experience and/or access to a computer with the necessary nonvisual or low vision
accommodations (speech and/or enlargement programs) and/or access to a live-reader. Finally,
there was the assumption that (e) working participants would be willing to spend time filling out
the survey.
Limitations

Significant limitations included locating participants who received instruction through the SDCT curriculum equal to those who received instruction through the SL curriculum, considering the overwhelming number of instructors and rehabilitation agencies that use the SL curriculum. This limitation was anticipated because of the small number (75) of SDCT instructors (National Blindness Professional Certification Board [NBPCB], 2018). Another anticipated limitation was the scarcity of approved SDCT training centers, of which currently there are only six: (a) Blindness: Learning In New Dimensions, Incorporated (BLIND, Inc) in Minnesota; (b) Colorado Center for the Blind (CCB); (c) Louisiana Center for the Blind (LCB); (d) Ho’opono Services for the Blind Orientation Center in Hawaii; (e) Nebraska Commission for the Blind and Visually Impaired, Orientation Center; and (f) New Mexico Commission for the Blind, Orientation Center (NBPCB, 2018).

The third anticipated limitation was this survey would only be administered electronically which could possibly decrease the available consumers to those who have the necessary skills to access the internet (Crudden et al., 2017) or those who have access to live readers. Fourth, because of the ongoing debate within the professional field of O&M instructors (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018), it was anticipated that proponents from the conventional approach may air adverse reactions regarding this study as seen in Aditya’s (2004) comparison study evaluating the two O&M certifications. Such negative comments could limit the already small consumer pool for this study in that some O&M instructors may not willingly forward knowledge of this study to possible participants. A fifth possible limitation weakness anticipated was finding employed participants considering their time constraints (Aditya, 2004).
Delimitations

Active attempts were made to counter the above limitations. For example, because of the significant limitation as a result of the small number of SDCT instructors and the scarcity of approved SDCT training centers, seeking these targeted participants commenced prior to consumers who received SL instruction. Qualtrics was used because of its impartial data collection process and its accessibility features for consumers. Through widespread exposure across the country seeking participants, consumers were able to represent the whole United States rather than a specific region within the country.

Significance of the Study

There are several significant reasons for this study. First, 19 out of 20 universities teach the SL curriculum of O&M to future O&M instructors (Aditya, 2004). That is, these universities use the medical model curriculum that was developed in the 1940s for blinded military veterans returning from war maneuvers (Baldwin, 2016; Miyagawa, 1999) rather than the SDCT curriculum designed for consumers, by consumers who rejected the medical model (Baldwin, 2016; Omvig, 2005; Vaughan, 1993). When professional rehabilitation providers are not aware of the two O&M curriculums, consumers do not receive the benefit of informed choice (Cutter, 2007). Second, thus, consumers are not utilizing their right to informed choice regarding their O&M training because they are unknowledgeable about their O&M options: SL and SDCT. While considerable emphasis on informed choice has been given to individuals with disabilities through the 1992 Reauthorization of the Rehabilitation Act (Wolf-Branigin, Daeschlein, Cardinal, & Twiss, 2000), many consumers are still uninformed. Individuals with disabilities have the inherent right to exert control over their lives and self-select the direction of their lives (Wehmeyer, 2004).
Third, a determination needs to be made as to which curriculum offers higher levels of self-confidence among consumers. This determination can be done through a study that documents the distance and frequency consumers travel post O&M training, thus measuring self-confidence in independent O&M skills, whereby independent means without the assistance of a sighted guide. Fourth, although WWII may be over, the United States still has wounded soldiers who have returned from war maneuvers with vision loss because of traumatic brain injuries (TBIs) (Iskow, 2010). Any civilian (U.S. citizen), for that matter, can obtain a brain injury with related visual impairment, such as retinal detachment, not only veterans. Therefore, rehabilitation strategies need to be investigated due to a variety of brain injuries resulting in related visual impairments such as those experienced by returning service members from Iraq and Afghanistan; brain or stroke survivors; automobile accident victims; and people experiencing other traumas (Iskow, 2010). Fifth, as in the 1960s, the population of individuals with visual impairments continues to grow (CDC, 2017). Finally, the last significant reason for the study is that a cost comparison per individual trained in O&M, based on the curriculum of instruction received, needs to be considered by VR agencies that are funded by taxpayers through the United States Government.

Summary

Orientation and Mobility instructors need to accept that those who have been trained and certified in the rival approach may not all think alike, and professionals can benefit from accepting the knowledge of the other curriculum with respect to the consumers who can become easily obscured behind the profession (Aditya, 2004). The bottom line is that it is not the instructor’s certification or if the instructor is blind or sighted that determines how well consumers are served; instead, it is the curriculum that holds the key (Aditya, 2004). For
consumers, empowerment is critical to ensure success so that they receive O&M through a holistic person-centered training leading to their development, goals, and priorities (Wolf-Branigin et al., 2000). Chapter 2 reviews O&M research revealing a lack of studies conducted on the curriculum, Chapter 3 explains how this study was administered, while Chapter 4 reports the results of this study followed by the final discussion in Chapter 5.
Chapter 2: Literature Review

The purpose of this comparison study is to determine which curriculum of Orientation and Mobility (O&M) instruction, (a) Sequential Learning (SL) or (b) Structured Discovery Cane Travel (SDCT), yields the highest level of self-confidence among consumers within the United States. Long (1990) offers a comprehensive O&M review of literature published before 1980 focusing on measurements used to assess O&M within natural travel environments versus laboratory settings. A study was conducted by Dr. Ram Aditya in 2004 comparing the two types of O&M certifications: Certified Orientation and Mobility Specialist (COMS) and National Orientation and Mobility Certified (NOMC). Although there have been studies conducted on various aspects of O&M, comparisons of the two curriculums (SL and NOMC) have been scarce or according to Fazzi and Barlow (2017), nonexistent. Studies measuring O&M instructional variables, such as curriculum, “were virtually ignored by researchers” resulting in unanswered knowledge in best practices regarding the most effective method of O&M training for consumers (Long, 1990). Therefore, the development of research in instructional O&M strategies is critical (Long, 1990).

Conceptual Framework

The conceptual framework selected for this study is Glasser’s choice theory which is internal control psychology that explains how and why people make choices determine the direction of their lives (Glasser, 1998). The reason choice theory is the conceptual framework for this study is that now there are two choices which may offer different results on a consumer’s quality of life. Such consumer choice emerged in the 1990s as an essential component of VR services (Kosciulek, 2004), whereas O&M options were not available prior to 1998 (National Orientation and Mobility Certified [NOMC], 2017). Offering consumer choice is paramount for
when there is active involvement in decision making, there may be an increase in training effectiveness (Coulter, Entwistle, & Gilbert, 1999) leading to better employment outcomes (Kosciulek, 2004). Curricula “must focus on the development of effective vocational counseling techniques” and instructors “must be knowledgeable of the state-federal VR system informed choice mandates” (Kosciulek, 2004, p. 46) as well as “the spectrum of conventional and alternative O&M practices” (Cutter, 2007, p. 7). This can only occur through solid research to determine if the status quo operating system is flawed.

Current professionals in the O&M field have been engaged in ongoing deliberation (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Koestler, 1976; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018) involving two categories of gatekeepers: professionals who are invested in either the SL or the SDCT curriculum. The majority of O&M instructors use the traditional curriculum (SL) because of its existence since the early 1940s, whereby considering it the tried and true method. Baldwin (2016) states it is easier to develop sequential curricula and follow linear lesson plans than to individualize instructional strategies to meet the complex needs and passion fluctuations of consumers.

“As in the fable of Blind Men and the Elephant, no two of us perceive it the same way” (Glasser, 1998, p. 44) and this is the same for O&M professionals since many consider their curriculum of instruction superior to the other. According to Glasser (1998), this is because of the concept of one’s quality world in which each person creates memories, beginning with birth, which portrays strategies to satisfy basic needs. He adds that these portrayals are categorized as follows: (a) the people we most want to be with; (b) the things we most want to own or experience; and (c) the ideas or systems of belief that govern much of our behavior (Glasser,
In general, both instructors and consumers may be able to classify themselves within all three of the above-listed portrayals. However, for this study, the latter one is most critical, for it is the ideas or systems of belief that govern the actions of both the consumer and the instructor, which combined mainly affects the quality world of the consumer. There is an added complexity regarding consumer preference in O&M because American society does not place equal expectations on citizens without disabilities and those with disabilities for it would not be unusual for a blind individual to grow up with a sense of inadequacy and lack of self-confidence . . . [G]iven a choice of two rehabilitation programs that demand different levels of performances, the typical client . . . may choose a less demanding program simply because of apprehension about her capability to satisfy demanding requirements rather than lack of potential. (Aditya, 2004, p. 70)

**Accessibility and Informed Choice**

“Choice theory also states that, for all practical purposes, we choose *everything* we do” (Glasser, 1998, p. 3). This opportunity is not accessible to newly blinded consumers partly because of their lack of skills necessary to independently research and obtain information regarding their options (i.e., unknowable of and/or lack of skill in the Braille code, inaccessible access to large print or electronic materials). Therefore, quality information must be presented to consumers in a format that is accessible to meet their individual needs (Magasi, Durkin, Wolf, & Deutsch, 2009) and for newly blinded consumers that information may need to be presented verbally or in large print. Many consumers base their decisions on information that is subjective or acquired through informal sources which include word-of-mouth recommendations from family or friends (Magasi et al., 2009; Vaughan, 1993). It is like placing an order in a restaurant without having the opportunity to examine the menu (O’Day, 1999). Consumers are
often uninformed of the availability or extent of services and end up pigeonholed (O’Day, 1999) even though individuals who receive VR services with decision-making control experience better outcomes than those with less control (Steinman et al., 2013).

All too often, consumers encounter professionals who determine what is right for the instructor and what the instructor believes is right for the consumer thereby “following a destructive tradition that has dominated” (Glasser, 1998, p. 4) rehabilitation, including the O&M field, for decades. Instructors and consumers “often have differing priorities within the rehabilitation process . . . expressing divergent views regarding the most important components” (Wolf-Branigin et al., 2000, p. 21) leading to a decision without consulting consumers (Kelley, 2004; Wehmeyer, 2004). “Management control over areas such as policy and procedures have the potential to influence service delivery and subsequent employment outcomes” (Steinman et al., 2013, p. 437). When there is a difference in curriculum favoring one over another, Vaughan (1993), a consumer, states professionals attending conferences are often unwilling to discuss controversial issues—particularly with consumers. Furthermore, ophthalmologists’ or physicians’ attitudes regarding blindness can vary across the nation and influence patients positively or negatively, as some have commented that rehabilitation is no concern of theirs (Vaughan, 1993). Consumers who are not given an informed choice conclude their feelings and actions can be controlled by professionals, thus removing personal freedom of choice, which is vitally needed (Glasser, 1998), leading to risky decisions regarding their future independent movement (Cutter, 2007).

**Review of Research Literature and Methodological Literature**

A plethora of search strategies was conducted for this study which includes but were not limited to the following: peer review journals, articles, scholarly books, educational materials,
textbooks and the American Printing House for the Blind museum. The research was collected through the Concordia University search engines such as ERIC, EBSCO hosts, and Sage, along with public search engines such as Google and Google Scholar. Keywords included but were not limited to the following: Orientation and Mobility (O&M), Sequential Learning (SL), Structured Discovery Cane Travel (SDCT), teachable moments, discovery learning, informed choice, visual impairment, blind, Veterans Administration, cane travel, foot travel, structured teaching, and vocational rehabilitation.

**Comparison of the two O&M Curriculums**

Currently, there are two O&M curriculums: Sequential Learning (SL) and Structured Discovery Cane Travel (SDCT). Both have adopted various O&M instructional techniques developed through the Veterans Administration (VA) (Sauerburger, 2007), and such instructional techniques are evident within university training programs across the country. Curriculum reflects the values and philosophies of the creators (Wiles, 2009). These O&M lessons include: independently traveling in and to unfamiliar destinations; environmental familiarization; assessing intersections (i.e., traffic patterns, geometry of the intersection, one or two lanes of traffic); problem-solving techniques; and drop-offs (developed by Chief Williams about 1950 when he was dropped off at the incorrect address) (Sauerburger, 2007). Structured discovery learning closely resembles the VA O&M program and “these features were appropriate for the traditional O&M program because it served a very homogenous group of people--all the clients were suddenly, completely, and permanently blinded” (Sauerburger, 2007, para. 2). However, “most university training programs teach conventional O&M techniques including the use of functional vision to enhance travel, which does not emphasize discovery learning” (Pogrund & Griffin-Shirley, 2018, p. 25). Activities focused on discovery learning can reinforce the
development of higher self-confidence while perfecting previously learned skills through transformational knowledge.

As consumers fine-tune physical techniques of O&M, instructors introduce more challenging tasks at the consumers’ skill level (Chamberlain, 2013). Therefore, the O&M curriculum is individualized according to consumers’ needs (Jacobson, 2013; Welsh, 2005b). Orientors (the original O&M instructors at the VA) developed their own sequence of instruction because some veterans had multiple disabilities that consisted of amputations of arms or lower limbs, bilateral amputations of hands and/or severe hearing impairments (Welsh, 2005b). Above all, O&M instructors need to help consumers develop a positive attitude about independent travel, including the acceptance of using the cane, and this positivity must emerge from within the individuals (Chamberlain, 2013).

The SL foundation of instruction begins with following the physical movements of the guide by holding on to the guide’s elbow, a technique which creates a trusting relationship and strong rapport between the consumer and instructor (Jacobson, 1993). Thereafter, since trust can lead to action (Usoro, Sharratt, Tsui, & Shekhar, 2007), sighted guide instruction remains the focus of the lessons until both the consumer and the instructor are convinced that the skill has been mastered (Jacobson, 1993). In SL, sighted guide is considered the primary method used by consumers to obtain assistance from the public (Jacobson, 1993), that is, a person who walks ahead of the consumer to pay attention to future environmental occurrences (Welsh, 2005b). Sighted guide provides consumers their first opportunity to experience control over their environment (Jacobson, 1993) even though they are often at the mercy of their guide.

After consumers have mastered sighted guide technique in SL, they receive lessons by their O&M instructor who has previewed the selected training environment based on the
consumers’ needs (Wall Emerson & Corn, 2006). This previewed environment must pass an environmental assessment conducted by the SL O&M instructor who evaluates supports or hindrances of “independent travel such as signage, sound, texture, and organization; and safety features and hazards” (Kaiser et al., 2018, p. 6). Thus, SL instructors plan destinations for the consumers to walk to and provide virtually step-by-step accounts as to what the consumers will encounter along their route. Therefore, this lesson, considered as walking a fixed-route (Crudden, 2015), further embeds the Custodial Paradigm in which “the sighted would determine for the blind what places were good for them to go” (Ferguson, 2001, p. 170) rather than focusing on natural environments which are real-world settings where consumers work, live, play, interact, learn and travel (Kaiser et al., 2018). Thus, consumers must utilize short-term memory to memorize the route, causing a decrease in performance due to the negative relationship between stress effects and short-term memory (O’Donnell, 1988). Defining factors between accomplished and poor travelers are their level of self-confidence, their capability to handle anxiety (Alan Beggs, 1992), and their memory capabilities. Fixed-routes or route travel “will never be accomplished or experienced in exactly the same way each time it is undertaken,” nor will two consumers with the same visual disability perform identically (Deverell, 2011, p. 67).

Research indicates that consumers can become dependent on others when only traveling with a sighted guide and often consider their O&M instructor as their personal sighted guide (Welsh & Blasch, 1980). Even though, according to Kaiser et al. (2018), O&M instructors provide opportunities to build independence, so they do not become overly dependent on others. Since the 1960s, sighted guide has been a quandary for consumers, that is, knowing when to obtain sighted assistance and when to detach oneself from sighted guide dependency when no
longer required (Leonard, 1968). This practice referred to as learned dependency (Omvig, 2002) or learned helplessness, can be best described in the following example: a woman who regained her vision after receiving a particular treatment was asked by her doctor to walk down the hall. She replied that she was not used to walking without a guide for she had not walked any other way for years (Ferguson, 2001). Clearly, this demonstrates extreme dependency when the sole mode of travel is with a guide (Tuttle, 1984) as well as how traveling sighted guide removes one’s independence (Ferguson, 2001; Pogrund & Griffin-Shirley, 2018) and sense of space.

In O&M, “learning is informed by and is integrated” via “movement through space, requiring a greater degree of multi-tasking than if the learner remains static” (Deverell, 2011, p. 69). Spatial orientation is necessary because it is vital for the brain to have a system to keep track of where the body is, and that option is through touch (Kaiser et al., 2018; Payne, 2002). Therefore, many consumers use the long, white cane as their mobility tool (Tuttle, 1984) since one of its many qualities is that it provides tactile information about the terrain. A cane with a metal tip provides information to the consumer about the environment through auditory echolocation which, according to Cutter (2007), “is the use of reflected sound to explore and more efficiently move and travel in the world” (p. 5). For example, Chamberlain (2013), discussed an O&M lesson in which she had with a middle-aged consumer, blind since birth, who used echolocation by means of the metal tip of his cane to successfully announce houses and mailboxes along the way. Although some professionals underestimate consumers’ abilities to retrieve sensory information (Vaughan, 1993) others believe not obtaining this skill leaves consumers environmentally illiterate (Baldwin, 2016). The metal cane offers consumers distance sense through sound, while knowledge of near space is offered through touch (Cutter, 2007).
Curriculum in SDCT begins with basic cane techniques such as (a) how to hold the cane: extended grip and pencil grip, and (b) how to walk-in-step with the cane. This is followed by traveling to the consumers’ desired location during which instructors assist consumers to walk to that destination while practicing cane techniques and developing cognitive problem-solving skills. Such problem-solving opportunities were available to veterans in the 1940s when their instructors attempted first to confuse them, then drop them off with the objective to figure things out on their own (Welsh, 2005b). Cognitive processes (attention, auditory and memory) are often relied upon by consumers during rehabilitation training (Iskow, 2010). Therefore, a consumers’ ability to access their own cognitive map while traveling serves as a higher mental spatial ability than to memorize a sequence of associated actions or landmarks and this ability is fundamental for successful cane travel (Long & Giudice, 2010) post-training. In the SDCT curriculum, consumers are shown human guide (sighted guide) as an alternative method of travel during teachable moments such as sticking together in crowded areas (e.g., Mardi Gras). Human guides need not have the vision to guide another; instead, the guide only needs to be a better problem solver than the follower (Chamberlain, 2015). Teachable moments offer opportunities for promoting personal interests, skill building, and critical reflection with self-assessment (Hansen, 1998).

**Significant Differences Between SL and SDCT Curriculums**

Baldwin (2016) stated when the veterans returned blinded in WWII; the change in basic assumptions was that “blind people were fully capable of independent movement—all they needed was some training and a few basic tools . . . the long cane that probes space as the blind person moves about” which led to the cane becoming “the focal point for the creation of an entire profession” (p. 42). That being said, the first noteworthy difference between the SL and
SDCT curriculums involves cane characteristics (i.e., length and features) and the second is *when* guide instruction (i.e., sighted guide or human guide) is introduced to newly blinded consumers. Commonly known in the O&M profession is that Lieutenant Richard Hoover was the instigator in using a white cane as the preliminary adjustment travel tool for mobility (Koestler, 2004). Hoover received his experience working in the blindness profession through the Maryland School for the Blind as a teacher and physical training coach (Koestler, 2004). Following Hoover’s guidance, the cane introduced to consumers in SL has a length reaching to about the consumers’ sternum (Aditya, 2004; Koestler, 2004). Keep in mind that the cane’s function is to preview the terrain prior to the consumer encountering the environment. According to Dodds (1988), this short cane length requires an arm position which is unnatural and unreasonable, causing the arm to become quickly tired and leading to temptations to relax the arm to the side. Bryant (2009) adds, when the cane height reaches between the navel and the chest-bone, the consumer must walk bent over. The textbook technique of holding the cane at arm’s length is so uncomfortable that many consumers misuse their canes post-training (Dodds, 1984).

On the other hand, consumers receiving O&M training in SDCT receive a cane which is about as tall as the consumer’s mouth or somewhere between the chin and the nose (Aditya, 2004) which follows 1st Chief William’s example (Miyagawa, 1999). Dodds (1984) describes the longer cane as “infinitely more comfortable” because instead of holding the cane at arm’s length, the cane is “held about two inches in front of the stomach, with the elbow bent” (p. 7). Rodgers and Wall Emerson (2005) state longer canes alert consumers of environmental hazards quicker than shorter canes because they contact the surface sooner. This advance warning provides consumers more time to react to unexpected objects such as drop-offs (curbs or stairs).
In addition, the handles of the canes are different. Sequential Learning uses a *golf-handle* with three different handgrips, while SDCT utilizes a cylinder or tube style handle that utilizes the ‘open-palm’ grip (Aditya, 2004) and pencil grip. However, according to Aditya’s (2004) research, the open-palm grip is not suited to the golf-handle cane and, therefore, is not mentioned in traditional O&M textbooks. Thus, SL trained O&M instructors are unaware of the open-palm grip for the cylinder cane causing many to be critical of the SDCT approach which ensures the non-use of the cylinder cane for consumers (Aditya, 2004). Finally, the bottom of the cane in SL includes a variety of tips which can be exchanged for various types of terrain while the SDCT cane tip is metal to offer active, consistent echolocation for the user by producing a specific signal sound designed and enhanced to reflect off objects (Johnson, 2012). History shows metal tips have been used on the bottom of canes to assist in echolocation for blind individuals since the 1800s (Roberts, 2009).

Although the cane characteristics are a noteworthy difference, they are not significant enough to be a pivotal factor in this study; instead, it is the second substantial difference which involves the critical timing of the introduction to the guide technique that is the basis of this study. University professors teaching SL to future O&M instructors spend countless hours learning how to guide consumers from point A to point B, which is a method that merely can take less than seven minutes to learn (Saltzman, 1978) or review (American Foundation for the Blind [AFB], 2018b). Experienced consumers are capable of teaching novice guides, and, with a minimal amount of practice, the guide can become an expert at the skill (Foundation Fighting Blindness, n.d.). Whereas the cane is a tool used to seek obstacles to aid in orientation, guides can be used to avoid obstacles (Long & Giudice, 2010; Williams, Hurst, & Kane, 2013). It is such an elementary skill that *children* are human guides in the Mexican city of San Pedro Yolex.
where there is a high incidence of consumers and where having children as guides is considered mutually beneficial (Vaughan & Omvig, 2005).

Beginning with *A Veterans Administration Medical Film* (1952, 1952b), sighted guide technique continues to be listed as the first or only option of travel before introduction to the cane in O&M textbooks, pamphlets, university O&M programs, training manuals and/or storybooks (Crow & Herlich, 2012; Fazzi & Barlow, 2017; Flaherty et al., 1997; Halpern-Gold et al., 1988; Ho’opano, n.d.; LaGrow & Weessies, 1994; Pogrund & Griffin-Shirley, 2018; Pogrund et al., 1995; Salus University, n.d.; Scholl, 1986; Schwartz, 1987; Wainapel, 1989; White, 1991). Joe Cutter (2001), who was trained in SL but later shifted to the SDCT curriculum of instruction, states his university training began with and then placed overemphasis on the sighted guide technique with “pages and pages demonstrating the technique in the textbook curriculum and hours and hours in the practicum experience for” students who are learning to become O&M instructors (para. 9). Cutter (2001) adds that the sighted guide technique is merely an unnecessary readiness curriculum which only serves the professional who, in his opinion, has not perfected O&M skills or the teaching of them.

Therefore, when going sighted guide, Cutter (2001) continues, the primary lesson consumers learn merely is how to mimic another person’s physical movements rather than developing their own. Training a guide, according to Pogrund and Griffin-Shirley (2018), is relatively easy and Tuttle (1984) adds verbal communication can be supplemented if the guide’s body movement is insufficient in the identification of terrain (step-up or step-down), directional, or pace changes. Finally, Cutter (2001) considers instructing consumers in sighted guide is more of a curriculum *filler* activity versus time spent on learning independent cane travel skills, which he states is the *real skills* of blindness.
The focus of the first several lessons in the SL university curriculum is on sighted guide technique prior to learning about the long, white cane and this sequence transfers from college students to future consumers (COMS Handbook, 2018; Salus University, n.d.). By focusing on the sighted guide at the beginning of instruction, O&M college students and newly blinded consumers subconsciously learn that safe travel may only be obtained when there is a sighted guide available (Chamberlain, 2015), which can hinder the development of self-confidence in independent travel. On the other hand, the first lesson in the SDCT curriculum focuses on the physical components of holding and using the long, white cane, such as (a) proper hand grips (of which there are two), (b) proper arcing of the cane, and (c) walking-in-step. During this first lesson, instructors help consumers build self-confidence by encouraging them to identify different sounds the metal cane tip makes when tapped against environmental objects (i.e., wall, trash cans or doors) (Chamberlain, 2013). Post-training, many consumers may only occasionally use a guide for assistance and/or only if one is available and/or when it is more convenient while other consumers absolutely refuse to use guides with the philosophy that it is essential that they be capable of independent travel (Vaughan & Omvig, 2005). These individuals believe independence is not attainable when a person is continuously guided from one location to another (Castellano, 2005), for being guided is equivalent to a passive passenger in any form of moving vehicle.

Rehabilitation Comparison

Verbal environmental information provided to the consumer is a fundamental difference between SL and SDCT. As mentioned above, prior to the lesson, the SL curriculum prepares consumers to walk predetermined routes by providing extrinsic information about the environment (i.e., the number of alleys, driveways, curbs, etc.) that they will encounter along the
way. Before and during the lesson, SL instructors provide consumers with visual information as seen by the instructors, giving consumers limited opportunities to focus and develop intrinsic feedback. The philosophy that any visual cue is the most efficient and reliable source of information for consumers to accomplish spatial tasks (Long & Giudice, 2010) is paramount in the SL curriculum. However, how consumers choose to act upon the extrinsic information is up to them (Glasser, 1990) even though, in the SL curriculum, consumers are expected to memorize this information before being released to perform the task. On the other hand, in the SDCT curriculum, rather than verbal information, consumers are encouraged to use auditory, tactile, and internal perception (kinesthetic cues) (Long & Giudice, 2010), as well as olfactory, memory, and prior knowledge for determination of spatial data. According to Baldwin (2016), the teaching of perception (i.e., focusing strategies) needs to be included in O&M instruction, not just cane mechanics. Furthermore, such environmental monitoring requires consumers to pay attention to their intake of continually changing raw perceptual data which is gathered moment-by-moment through reaction to their active global position and this information needs to be organized into their cognitive map for later retrieval (Baldwin, 2016).

Preview of the upcoming lesson is not provided to consumers receiving instruction through the SDCT curriculum; rather, there is a discussion to determine the consumers’ interests and desires of possible destinations. Then, during the lesson, SDCT instructors remain silent so consumers may concentrate on extrinsic information provided by external environmental sounds (i.e., traffic, sun, and wind cues) along with textured feedback and auditory clues offered by the metal tip of the cane. This provides SDCT consumers with extensive opportunities to develop intrinsic feedback during travel lessons. However, at times, consumers may encounter problems which seem unsolvable, and when that happens, SDCT instructors assist by asking probing
questions to help direct consumers to arrive at a solution based on their previous knowledge and experiences. Probing questions assist consumers in tapping into their transformational knowledge and helping develop intrinsic skills while they are engaged in traveling to desired routes (Mettler, 1995). From the onset, there is an understanding of SDCT that consumers have the locus of control. As such, for optimal performance, it is vitally important that consumers are in a thinking state (Fay & Funk, 1995) during the O&M lesson. Thus, the best way for learning is having time to mull over ideas, weigh the alternatives, and contemplate options during problem-solving activities and the time used for thinking increases the likelihood that problems will be solved (Fay & Funk, 1995). Therefore, targeted lessons are not presented; rather, they are discovered by the consumers through problem-solving opportunities (Blasch et al., 1997) which farther develops transformational knowledge for future retrieval.

Two types of memory systems, Taxon (short-term memory) and Locale (long-term memory) (Payne, 2002), are clearly embedded within the two curriculums. Sequential Learning curriculum follows the Taxon memory system in which the memory capacity is about five tasks, and because of this, SL instructors insist consumers need continuous rehearsals to gain perfection and consumers require extrinsic motivation (Payne, 2002). Thus, consumers must develop attentional O&M skills while improving the memory span and this process will challenge memory capacity during the planning and rehearsal of the route prior to performing the task (Dodds, 1988). Fixed travel routes foster isolated knowledge chunks which are not significant in nature (Payne, 2002), and which are inflexible to shortcuts, detours, or curious exploration. On the other hand, SDCT curriculum follows the Locale memory system, in which the memory capacity is unlimited and because of this, SDCT instructors consider consumers are motivated by
curiosity and intrinsic expectations. Locale memory systems are interconnected while creating personally meaningful maps (Payne, 2002) which build mental mapping skills.

A fundamental difference between SL and SDCT is the placement of the locus of control, which is another way of saying that the client perceives that he is in a position to have some effect on the world or not. It basically addresses the issue of how much power the client perceives himself to have over his circumstances. A person with a low locus of control will believe that events simply happen to him and that he is powerless to change their course. A person with a high locus of control will believe that he can largely determine what happens around him. (Dodds, 1988, p. 49)

In SL, the O&M instructors maintain locus of control and therefore gain personal satisfaction when consumers are successful (Miyagawa, 1999). Also, SL instructors assume responsibility for consumers’ safety until a determination is made that the consumers are able to assume shared responsibility (Aditya, 2004). However, in SDCT, consumers maintain locus of control directly after receiving instruction on the basics of cane use according to Mettler (1995). He adds, henceforth the satisfaction remains with the consumers through their own successes. The basic techniques of cane travel skills training include the foundation of O&M and are transferable to more advanced phases of travel (Blaha, 1967).

Finally, a significant fundamental difference between SL and SDCT is the amount of time instructors spend learning the techniques of O&M firsthand while wearing occluders. Occluders are any type of blindfold, bandana, sleep-shade or contraption used to restrict or block visual input (Kappan, 1994). Regardless of the amount of time wearing sleep-shades, individuals often emerge from the experience with the impression they know what it is like to be visually
impaired or blind (Kappan, 1994). However, minimal time with occluded disability awareness activities has the potential to create false impressions and safety concerns while maneuvering without proper training (Kappan, 1994). Thus, limited experience leads to misconceptions as to the true capabilities of individuals with visual impairments (Kappan, 1994). Future O&M instructors learning the SL curriculum in university programs spend minimal and sporadic time in sleep-shade training in contrast to those learning the SDCT curriculum of instruction, who spend extensive hours occluded (Aditya, 2004). Furthermore, SDCT models the VA O&M program in which new orientors spent substantial hours in sleep-shade training in the 1940s (Miyagawa, 1999), reinforcing that full occlusion during training builds confidence and perfects nonvisual skills (Pogrund & Griffin-Shirley, 2018).

**Sleep-Shade Training for Future O&M Instructors**

As previously mentioned, one crucial difference between the two O&M certification training programs is the amount of time future instructors experience wearing sleep-shades (i.e., occluders, blindfolds) in their practicums. Many educators use disability simulation as a powerful emotional experience to enhance awareness and to promote positive attitudes towards individuals with disabilities, as well as examine differences, stigma, negative attitudes and prejudices (Herbert, 2000). In 1994, O&M university programs teaching SL required approximately 60 hours under simulators (sleep-shades, occluders) with “individualized instruction in the introduction, development, and reinforcement of techniques” (Kappan, 1994, p. 5). Ten years later, these traditional SL universities increased their simulation training to 130 hours while future Louisiana Tech students learning SDCT received immersion experience with “500 to 750 hours of travel and instruction under sleep-shades for sighted persons; 500 to 2000 hours for partially blind instructors” (Aditya, 2004, p. 31).
The lower number of hours and sporadic opportunities under sleep-shades in traditional programs instill the fear of blindness among future O&M instructors which, in turn, nurtures the Custodial Paradigm. This fear is further internalized by means of the practicum procedure of having future O&M instructors work in pairs with one person serving as a sighted guide or spotter in the event of any potential risks (i.e., stairways, drop-offs, overhanging objects, or narrow passageways) not evident to the O&M student wearing the sleep-shades or should the student wearing the sleep-shades request assistance (Herbert, 2000; Kappan, 1994). Then partners switch positions, so each can experience wearing occluders and perform required tasks. Such educational institutional practices reinforce the custodial viewpoint (Baldwin, 2016), as is evident in the following comment:

“You always knew that your partner was there, keeping an eye on you. . . . It is the same type of thing that we do as instructors—giving students the room to interact with the environment and build confidence in their skills, but we’re there to grab them if they make a mistake” said Kathy Heydt, COMS and Assistant Education Director. (Hackett, n.d.)

According to Herbert (2000), individuals wearing sleep-shades in short durations (i.e., a few minutes to an hour), tend to experience physical and mental fatigue while learning the alternative technique of how to perform tasks without vision. When sighted participants cover their eyes, they psychologically comprehend the activity is temporary and at any time they can easily remove the occluder to regain their vision (Kappan, 1994). The knowledge of being able to lift sleep-shades (peek) or discontinue simulation provides internal comfort to future O&M instructors yet negates the purpose of the activity. Insights expressed by participants include humiliation, embarrassment, insecurity, apprehension, frustration, displeasure with self,
isolation, and reliance on others (Herbert, 2000). Furthermore, according to Wurst and Wolford (1994), college students who experienced sleep-shade disability awareness simulation for a single day perceived people without disabilities as judgmental, distant, and unfriendly. Following this experience, participants felt fortunate not to have the disability and concluded those with physical disabilities have more difficulties with society, are more frustrated because of their disabilities, and are more preoccupied with physical accessibility (Herbert, 2000).

Finally, those who experience a minimal time of simulated blindness tend to have lower expectations of consumers; therefore, “misconceptions are often the result of otherwise well-intentioned attempts to replicate the conditions existent with those who are visually impaired” (Kappan, 1994, abstract).

The brief period of time future SL instructors wear sleep-shades is not enough to enable useful insights as to what it truly means to incorporate disability into one’s overall identity or the experience which results from living with the disability (Herbert, 2000). However, the methods practicum for future SDCT instructors includes extensive hours in total immersion (wearing sleep-shades or occluders) to gain the confidence and skills necessary which they can, in turn, demonstrate to prove a task can be completed without vision or whenever a complicated situation arises, as is evident in a comment made by an O&M instructor regarding a travel lesson. This instructor stated he could not understand why a consumer was having difficulty crossing an intersection “until he put on blindfolds—and then it was obvious how the sound of a construction boom two blocks away was obliterating the traffic cues that his blind client would have otherwise used to cross the intersection” (Aditya, 2004, p. 73). Be it clear, however, that consumers who have been blind or visually impaired for any extended amount of time have developed and reinforced the alternative techniques of blindness skills and therefore do not
consider techniques difficult or frustrating to accomplish (Kappan, 1994). Such compensations and adaptations to function independently and any notion that such activities are a challenge is just not true (Kappan, 1994).

**The Launch of the Higher-Level Educational Movement for O&M**

In 1958, the United States Office of Vocational Rehabilitation acknowledged the necessity for the education of O&M instructors as one of the top priorities in the preparation of rehabilitation personnel (Voorhees, 1962, as cited in Blasch et al., 1997). The next year, the American Foundation for the Blind (AFB) held a conference to establish criteria for O&M instructors and to develop the curriculum, determine preparation length and established appropriate sponsorship with the result being a one-year graduate program (Blasch et al., 1997). One criterion established by AFB was the requirement that O&M instructors be sighted with the belief that sight was necessary for the instructor to observe consumers’ safety from a distance (Wainapel, 1989; Vaughan, 1993; Blasch et al., 1997). Following this conference, two colleges received grants to establish O&M programs for those working with adventitiously blind adults: Boston College in 1960 and Western Michigan University one year later (Scholl, 1986; Blasch et al., 1997). Thirty grants were given in 1962 to 22 states by the Vocational Rehabilitation Administration (VRA) to cover the salaries of O&M specialists hired by the participating agencies and schools (Blasch et al., 1997).

**The Beginning of Structured Discovery Cane Travel (SDCT)**

Since its inception in 1962, traditional O&M university programs required instructors to be sighted; therefore, consumers were historically not granted certification (Bell & Mino, 2011; Baldwin, 2016) and were excluded from higher level employment opportunities serving individuals with visual impairments. To address this inequality, in 1997 Louisiana Tech
collaborated with the Louisiana Center for the Blind that utilized discovery learning to develop an Educational Psychology program which excluded vision as an essential requirement or component of instructional method; instead, it mirrored principles from cognitive learning theory (Bell & Mino, 2011; Schroeder, 1997). Structured Discovery Cane Travel does not follow a sequential model of instruction; rather, consumers are first instructed to master simple cane techniques, then their lesson quickly shifts to opportunities focused on problem-solving (Mino, 2011). There is the assumption that everyone can learn for themselves (Koestler, 2004), through cognitive ability building to develop self-confidence in their independent travel in a way that is meaningful to them (Tigges, 2004).

The SDCT curriculum encourages consumers to learn about the environment through physical interaction and the utilization of residual senses through movement, exploration and possibly curiosity as a conceptual whole (Tuttle & Tuttle, 1996). Learning is most potent through action which “develops a deeper and more profound knowledge and greater commitment than learning by reading, listening, planning, or thinking” (DuFour, DuFour, Eaker, & Many, 2006, p. 4). Furthermore, Barraga and Erin (1992), add that movement may accurately replace vision in clarification about the environment. Through SDCT, instructors assist consumers towards the discovery of sound profiles to enable and build upon deep understandings of environmental concepts (Maurer et al., 2007). This method is intentionally designed to guide consumers to use intrinsic feedback and/or transformational knowledge to help construct independent travel skills and knowledge through extensive practice, and training (Maurer et al., 2007) cultivating essential perceptual-cognitive skills for later use (Mettler, 1995). Once consumers realize their movement (travel) behaviors represent individual choices, they discover the freedom to make effective, responsible decisions (Sullo, 2007).
The O&M program at Louisiana Tech is significantly different from the traditional university programs because it: (a) focuses on the SDCT curriculum (contrary to the overwhelming trend among other university O&M training programs); (b) actively recruits individuals who are blind or visually impaired (who may also serve as role models as they instruct consumers); and (c) encourages individuals who have sight to enroll in the program with the understanding that all college students would learn O&M skills through extensive hours in occlusion (i.e., wearing sleep-shades) training, just as Chief Williams at Hines required orientors to wear sleep-shades. By learning cane travel skills without sight, all individuals (sighted, blind, or visually impaired) are afforded the equal status of having the same high expectations and skill requirements leading to graduation. Graduates of Louisiana Tech gain skills and confidence in nonvisual techniques of problem-solving, which is considered one of the most critical mental processes necessary for human beings (Mino, 2011). Thus, SDCT graduates can actively demonstrate to consumers the skills of problem-solving without the use of sight while using the long, white cane during their student teaching practicum and post-graduation employment.

In SDCT, consumers must wear sleep-shade during travel lessons because the goal of successful cane travel is for consumers to obtain nonvisual techniques (Maurer et al., 2007) and this occlusion training has several benefits. First, sleep-shades block any remaining vision consumers may have, preventing them from utilizing often unreliable vision as their primary sense. Second, this unreliable vision subconsciously affects the individual’s ability to build the necessary nonvisual knowledge and skills of travel (Maurer et al., 2007). Third, when unreliable residual vision is present, learning can be deterred. Fourth, sleep-shades reduce distractions and visual fatigue, so the consumer may focus on knowledge construction which significantly shortens time spent in rehabilitation. Furthermore, mental fatigue may occur through continual
attempts to utilize old skills while simultaneously trying to integrate and develop new skills (Maurer et al., 2007). Fifth, when instructors have extensive experience in occluded O&M travel skills, they can perform the skill without vision and be positive role models, whether they are blind, low vision, or sighted. When instructors can actively demonstrate their confidence and ability to travel without sight, consumers can internally believe in the skills they themselves are striving to obtain. Internal control psychology and choice theory is supported through SDCT because consumers are active, not reactive, internally motivated, “not controlled by outside events or stimuli” and it supports consumers to be “motivated from the inside out” whereby they are actively engaged in their own learning (Sullo, 2007, p. 14).

Through the SDCT curriculum, consumers build constructive travel (problem-solving) strategies which they can transfer to other locations, post instruction, where they can solve a myriad of travel woes or obstacles. This, by the way, was evident at Hines where many of the blinded soldiers were self-motivated during off-training hours and on weekends to travel to local establishments, and although the veterans’ proficiency of mobility scores was extremely high during this time, evaluation of this independent mobility performance was not conducted (Miyagawa, 1999). A consumer wrote this to his former SDCT instructor:

You taught me to simply pay attention to what’s going on around me. . . . I now usually ‘sense’ the item’s being there as I pass by. . . . Now it all seems so natural. . . . Thanks to your efforts, I’m unafraid to venture out on my own now, even when traveling in a new city. You gave me the understanding and courage to simply ‘get the job done,’ no matter the supposed obstacles. You taught me—undeniably—that I can be dropped off anywhere, not even knowing exactly where, and still find the location where I need to go. (Gravel, 2006, pp. 23–25)
One of the key components of SDCT is the importance of consumers’ *intrinsic motivation* in that instructors realize lesson goals need to be meaningful or significant to consumers (Sarid, 2012). “Internal control psychology is based upon the belief that people are internally, not externally, motivated” (Sullo, 2007, p. 7). According to Sullo (2007), choice theory is a biological theory in order to be emotionally healthy that has the following basic internal psychological needs which must be satisfied: (a) belonging or connecting; (b) power; (c) freedom; and (d) fun (p. 8). Sullo (2007) adds that with the development of self-confidence, consumers gain power through proficiency, achievement, and competence. It is the O&M instructor’s responsibility to encourage and facilitate learning opportunities in a variety of natural environments for the consumer to explore and build new understandings which support the other internal psychological needs listed above. Instructors in SDCT continuously monitor consumers’ skills and abilities to ensure no gaps of knowledge, splinter skills or missed skill-building opportunities occur.

The major foundation of SDCT is who holds the locus of control; the consumer or the instructor. From the very beginning, the explicit training goal in SDCT is for the consumer to accept and maintain locus of control while the instructor can measure this progress by how thoroughly the transition takes place (Mettler, 1995). This shift in the locus of control occurs as the consumer works through problem-solving opportunities (i.e., obstacles) while traveling to desired locations. However, this shift cannot happen if travel opportunities to face obstacles and develop problem-solving skills are not present. It is not the goal of SDCT to avoid potential obstacles (i.e., closed or blocked sidewalk or street) which prevents problem-solving from occurring and hinders consumers from generating alternative travel routes if needed.
In SDCT, consumers have many opportunities to develop problem-solving techniques, and it is vitally important that they have these opportunities in real-life situations. According to Mino (2011), many problems are “ill-structured because, by definition, they emerge from a real-world environment that is in constant and unpredictable change” (para. 5). The awareness of a problem exists in O&M when environment perceptions do not match expectations based on previous experiences of the surroundings or knowledge obtained prior to encountering the incident (Long & Giudice, 2010). Thus, the problems consumers face during cane travel lessons are not solved by the O&M instructor; preferably, it is the consumer who must problem solve to address any incorrect assumptions (Blasch et al., 1997). This process is a hypothesis-testing opportunity whereby consumers: (a) acknowledge that a problem exists, (b) identify workable solutions or strategies to proceed, (c) select a self-concluded option, (d) implement the selected alternative or strategy, and (e) evaluate the selected strategy (Long & Giudice, 2010).

**O&M Certification Options**

There are two O&M certification agencies available in the United States, and many consumers may not be aware as to which training curriculum they received (Aditya, 2004). Certified Orientation and Mobility Specialist (COMS), the traditional approach that is preeminent (Ferguson, 2001), was established through the Association for Education and Rehabilitation for the Blind and Visually Impaired (AER) in 1990 and ten years later transferred to the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP). However, in 1968, the American Association of Workers for the Blind (AAWB) established an O&M certification (Academy for Certification of Vision Rehabilitation & Education Professionals [ACVREP], 2018) that had a requirement of 20/20 visual acuity (Vaughan & Omvig, 2005) which was later adopted by universities. Although universities
placed a requirement of future O&M instructors to have *good vision* (Ferguson, 2001; Koestler, 2004), this requirement changed in 1971 to permit a visual acuity of 20/40, followed by another change in 1977 to a visual *functional approach* requirement by which the instructor may monitor consumers from a distance of several hundred feet, but it was not until 1997 that certification was an option for blind candidates (Vaughan & Omvig, 2005). “While observable measures of mobility performance are important, mobility involves a great deal of mental processing that may not always be measured through direct observation” (Geruschat & Turano, 2002, p. 80).

Currently, 19 universities in the United States are avenues to obtain COMS certification promoting the Sequential Learning (SL) curriculum where candidates must pass a written examination (Aditya, 2004; ACVREP, 2018).

Less preeminent is the National Orientation and Mobility Certification (NOMC), which is obtained through the National Blindness Professional Certification Board (NBPCP) and was established in 1997. Louisiana Tech University teamed with the Louisiana Center for the Blind to develop an alternative O&M training program which was made possible through a Federal Experimental and Innovative grant from the Rehabilitation Services Administration, U.S. Department of Education, to Louisiana Rehabilitation Services (Aditya, 2004). Proponents of SDCT believe the structured discovery approach is holistic because it addresses all aspects of a consumer’s life (Vaughan & Omvig, 2005). Although individuals who are sighted may attain this certification, originally it was designed as an opportunity for those who were blind or visually impaired to obtain credentials (Bell & Mino, 2011) so they, too, could enter equal employment opportunities to work with consumers. National Orientation and Mobility Certification is considered the only certification attesting that the holder has met the O&M rigorous standards using the Structured Discovery Cane Travel (SDCT) curriculum and
principles (NOMC, 2017) as well as not having a visual monitoring requirement (Vaughan & Omvig, 2005). Also, the NOMC is performance-based, meaning future O&M instructors must demonstrate the ability to perform all the techniques of O&M for outdoors and indoors while wearing sleep-shades if the candidate has any vision (Aditya, 2004). Furthermore, NOMC instructors have the title of Certified Blindness Professional (CBP) (Aditya, 2004). There are two avenues by which a person can become eligible for NOMC certification: (a) graduate from an NBPCB approved university program (of which currently there is only one); or (b) successfully complete an approved NOPCB supervised agency apprenticeship (Kaiser et al., 2018; NOMC, 2017). In 1998, two men graduated in the first year, followed by three men and two women the second year. All were blind or visually impaired, except one woman. Table 2 provides a Training Comparison of the two types of O&M certifications available in the United States.

**Problem-Solving Skills in O&M**

There has been little research regarding the assessment of independent functioning with respect to mobility for consumers (O’Donnell, 1988). Opportunities to problem solve are ill-structured because they present themselves during real-world activities within an ever-changing unpredictable environment (Mino, 2011). “Environments encountered in O&M is itself a living thing, a dynamic interplay between physical, social, and sensory elements” (Deverell, 2011, p. 64). To travel independently, practical problem-solving skills are essential according to Perla and O’Donnell (2004) whereby one of the O&M goals is to “address environmental barriers and teach individuals alternative techniques for navigating various environments to increase their skills and confidence” (Kaiser et al., p. 3, 2018). Perla and O’Donnell (2004) add that consumers who are successful problem solvers are capable of handling unpredictable situations
and it is not necessary for them to seek additional O&M instruction or to depend on others whenever faced with new predicaments. Successful problem-solving involves both external and internal factors, including the consumer’s conceptual knowledge, ability to manage stress, and skill level (Perla & O’Donnell, 2004). Problem-solving is one of the most important mental processes for human beings to engage in, and consumers must make use of alternative forms of information when vision is unreliable to solve problems which they encounter when traveling in new and familiar environments (Mino, 2011).

Table 2

*Orientation and Mobility Training Comparison*

<table>
<thead>
<tr>
<th>Category</th>
<th>Sequential Learning</th>
<th>Structured Discovery Cane Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established</td>
<td>1940s</td>
<td>1997</td>
</tr>
<tr>
<td>Certification Bodies</td>
<td>Academy for Certification of Vision Rehabilitation and Education Professionals</td>
<td>National Blindness Professional Certification Board (NBPCB) (ACVREP)</td>
</tr>
<tr>
<td>Certifications</td>
<td>Certified Orientation and Mobility Specialists (COMS)</td>
<td>National Orientation and Mobility Certified (NOMC)</td>
</tr>
<tr>
<td>Instructor training hours under sleep-shade</td>
<td>Minimal and sporadic</td>
<td>Extensive</td>
</tr>
</tbody>
</table>
Learning how to problem solve, which is a cognitive process, cannot be taught using the SL curriculum (Mettler, 1995) for it must be consumer-directed (Wehmeyer, 2004). Consumers must have the skills to navigate the environment as it is presented (e.g., sidewalks in poor condition, lack of audible signals and Braille signs, irresponsible drivers) and they need to be exposed to a plethora of problems in a variety of locations (Mino, 2011). Perla and O’Donnell (2004) compiled a list of potential obstacles which hinder O&M problem-solving. However, the SDCT curriculum removes those hindrances. The first obstacle Perla and O’Donnell (2004) identify is that consumers are typically overprotected; consequently, they are not given the opportunity to commit any mistakes from which to learn. Therefore, the lack of such opportunities to problem solve prevents consumers from the recognition that a problem exists (Perla & O’Donnell, 2004). Yet, it is not until consumers come to the realization that their perception of the environment does not match their previous experiences or expectations that they comprehend that a problem is present (Long & Giudice, 2010). According to Leahey and Harris (1997), there are two components of problem-solving: (a) understanding the existence of the problem and (b) solving the problem (as cited in Mino, 2011). Problem-solving is also a hypotheses-testing activity because after the problem has been identified, solutions or strategies must be determined (Long & Giudice, 2010). Following the list of possible solutions, consumers must select and implement a strategy and only when there is satisfactory effectiveness of the strategy or solution is the problem solved (Long & Giudice, 2010).

According to the Certified Orientation and Mobility Specialists (COMS) Handbook (2018), problem-solving skills in SL are introduced to the consumer after the proficiency of the following:
- Soliciting/declining assistance
- Following directions
- Utilizing landmarks
- Search patterns
- Compass directions
- Route planning

- Analysis and identification of intersections and traffic patterns
- The use of traffic control devices
- Street crossing techniques
- Techniques for travel in indoor environments, outdoor residential, small and large business districts, mall travel and rural areas

Until then, the SL instructor utilizes the monitoring commitment embedded within the Custodial Paradigm. This is done through a verbal report of approaching cautions such as stairs, wet floor signs or parked cars, whereby consumers become dependent on external feedback while encountering lost problem-solving opportunities (Mettler, 1995).

In the SDCT curriculum, consumers are given opportunities to encounter challenges throughout their lessons through structured discovery activities (Aditya, 2004). Using intrinsic feedback, they work to overcome such challenges by determining hypotheses and solutions while their instructor offers probing questions to assist them if needed (Mettler, 1995). These questions fall into the *synthesis* category of Bloom’s Taxonomy that allows thinking time which is necessary for individuals “who are solving problems, learning new skills, or internalizing values or behavior” (Fay & Funk, 1995, p. 181). Consumers “need time to mull over ideas, contemplate, and weigh the alternative before” concluding with the best deductions (Fay & Funk, 1995, p. 181). The SDCT curriculum offers consumers opportunities to enhance their O&M skills in a variety of environments such as “subways to nature trails, Capitol Hill to the
mountains of Arkansas, and Mardi Gras to New Jersey” (Bell, 2015, para. 12). Humans learn through experience which then leads to change within their lives (Baldwin, 2016).

The second obstacle Perla and O’Donnell (2004) note is the focus on right and wrong (Dweck, 2008) whereby when the lesson goals focus on only positive outcomes and there is an avoidance of problems, consumers may develop a fear of the unknown or failure which can result in a reduction of travel confidence leading to less independent travel (Perla & O’Donnell, 2004). In SDCT, this is resolved by considering every problem-solving encounter as a learning opportunity (i.e., teachable moment). Probing questions help lead consumers to realize the solution to overcome such obstacles are found within themselves.

Third, on the Perla and O’Donnell (2004) obstacle list is a considerable emphasis on memorization of landmarks and directions. When there is a memorization requirement of travel routes, the development of mental mapping skills and cognitive awareness about the environment can hinder independent mobility whereby encountering any unexpected objects, or accidental veering may cause further confusion (Perla & O’Donnell, 2004). Although some consumers believe they need to count steps, in SDCT counting steps from point A to point, B is considered unreliable because people do not always maintain the same gait from one opportunity to the next. Thus, consumers receiving SDCT training are encouraged to focus on developing skills rather than memorization.

Fourth, Perla and O’Donnell (2004) list lack of time as a potential obstacle by stating the conventional route-based curriculum can be justified by time constraints allotted for instruction. The SDCT curriculum allows for ample time for consumers to be successful during their cane travel lesson. If adequate time is not permitted to focus on the important aspects of the lesson, consumers will not be able to determine what is essential and therefore be unable to utilize the
experience in another setting or in any competent manner (Payne, 2002). Finally, Perla and O’Donnell (2004) list gaps in the prerequisite skills and concepts needed to problem solve independently, whereby such concepts of not knowing what a city block is may result in confusion when walking around four corners results in returning to the same spot. Such gaps (i.e., splinter skills) often develop when consumers comprehend fragments of a skill (Fazzi & Petersmeyer, 2001). Resolutions to encourage problem-solving through the SDCT curriculum avoid splinter skills because the targeted location is based on the consumer’s desires, whereby O&M skills and concepts are addressed during the lesson and improve as the consumer’s skills increase. However, NOMC instructors may encourage targeted destinations or planned activities to help build the consumer’s skills, experience, and abilities in deficient areas.

**Problem-Solving Skill Development Is the Foundation of SDCT**

Cognitive research has the following rule: “the more complex the process an individual is involved in, the more parts of that process need to be at the level of automaticity” (Payne, 2002, p. 60). Consumers develop intrinsic automaticity when the content and the process are interwoven (Payne, 2002) while incorporating the cane into the physical body schema without thinking about the continuous operation (Leonard, 1968). Such automaticity can occur while focused on problem-solving development, along with the process of perception, recall, recognition, and memory during problem-solving tasks (Mezirow, 1991). Opportunities to problem solve are paramount in the SDCT curriculum.

**Theoretical Foundation of the Problem**

The core curriculum difference between SL and SDCT is the timing of the introduction of sighted guide compared to the timing and introduction of the long, white cane. In SDCT, a guide need not have vision to lead a consumer; instead, the guide needs merely to be a competent
traveler (Chamberlain, 2015). Overall, it is the consumer’s decision of whether a guide is necessary post-training. A survey conducted in Japan in 2007 evaluated consumers’ travel habits either independently or with trained sighted guides (Shimizu, 2009). Data collected was focused on one-way trips “including whether a trip was made alone or with an escort (a household member, guide, friend or volunteer)” (Shimizu, 2009, p. 766). Sixty-four individuals (ages 34 to 85) with visual impairments responded to the survey recording a seven-day travel diary (Shimizu, 2009). Of the 729 trips, 52% were taken independently, 10% with a hired sighted guide, 32% with a household member, and 6% with a friend or volunteer. Thus, a total of 48% of the travels could have been taken with guides because “almost certainly companions, family members, soul mates, and others have served as sighted guides to blind people throughout history” (AFB, 2018b; Kaiser et al., 2018; Vaughan & Omvig, 2005, p. 141). Through further investigation of his data, Shimizu (2009) discovered individuals traveled more frequently with a guide as their vision decreased which demonstrates growth in the custodial philosophy. When consumers learn O&M while occluded, regardless of how much vision is lost, the skills in O&M are maintained. Unfortunately, the O&M curriculum most used in Japan was not disclosed in this study.

**First Lesson in SL: Introduction of the Sighted Guide** (i.e., Custodial Paradigm)

The use of a sighted guide is probably the most widely, socially acceptable method of mobility used by consumers (LaGrow & Weessies, 1994). With the guide’s position in the lead, the consumer has assured protection, and virtually all consumers have used human guides as an option, depending on their circumstances (LaGrow & Weessies, 1994). Consumers who are newly blinded or have rudimentary travel skills use human guides more often than those who have advanced travel skills, with the latter only using human guide accommodations when it is
necessary or more convenient (LaGrow & Weessies, 1994). LaGrow and Weessies (1994) state the *ideal sequence* in SL begins with introducing the consumer to the sighted guide technique because this is considered the “least threatening form of independent travel and requires few decisions on the part of the traveler initially” (p. 30). In turn, the guide becomes a custodian as protector of obstacles and navigator, while the consumer is free to focus on their other senses to interpret physical movements of their guide and environmental cues (LaGrow & Weessies, 1994).

Following the sighted guide technique, consumers learn self-protective and positional techniques; “the upper-hand-and-forearm technique protects the traveler from objects at the shoulder and head height,” while “the lower-hand-and-forearm technique provides protection at midline or waist level” (LaGrow & Weessies, 1994, p. 30). Thus, the traditional sequence begins with learning how to walk with a guide, followed by body protective techniques (Fazzi & Barlow, 2017). Consumers then receive their *mobility tool for life*, the cane, and they are introduced to the diagonal cane technique, which is considered the simplest cane skill as well as a technique used for body protection (LaGrow & Weessies, 1994). Overall, the SL curriculum was not designed for congenitally blind; rather it was designed for adventitiously blind, that is, adults who have a significant vision loss (LaGrow & Weessies, 1994) which was accidental, unexpected or unforeseen. Therefore, the SL instructor helps consumers to build necessary skills and confidence by creating a successful history of O&M lessons that are carefully paced and sequenced to introduce skills and assign tasks in planned environments (LaGrow & Weessies, 1994). “A progression of environments, from simple to complex is typically used when teaching the long cane or introducing road crossing concepts and skills” (Deverell, 2011, p. 68).
In the SL curriculum, consumers are directly submerged into the Vision Paradigm, which is the firm understanding that vision is a necessary requirement of environmental management for safe and competent travel (Mettler, 1995; Ryles, 2008). Also, in the traditional model, “vision is synonymous with safety; vision loss is synonymous with danger” (Ryles, 2008), thus the need for sighted guide instruction. Henceforth, the guide (who is often the O&M instructor) verbalizes visual observations to the consumer who receives this information second-hand and is then expected to manage the environment (Mettler, 1995). With this approach, consumers may perceive that (a) they require ongoing and significant monitoring by sighted individuals and (b) all monitoring must be visual (Mettler, 1995). When consumers are focusing on external verbal information (i.e., extrinsic feedback), the development of internal problem-solving techniques by means of intrinsic feedback is unattainable. Sighted guide lessons often create “within the learner a dependency on the instructional setting” according to Mettler (1995) and “this dependency, in turn, impairs independent performance in real-world settings after training is completed,” keeping the locus of control with the O&M instructor (p. 2).

When services are done for another and little is expected from the other, whereby control exists outside the consumer (Vaughan, 1993), consumers enter the Custodial Paradigm in addition to the vision paradigm, as discussed above. In the seventeenth and eighteenth centuries, individuals with visual impairments were removed from society and hid in asylums, where basic human necessities such as clothing, food, and housing were provided (Tuttle, 1984). “Although protection would have been preferred to annihilation, it represented another form of annihilation-that of the soul” because taking care of and nurturing the body in no way compares to taking care of and nurturing their spirit (Tuttle, 1984, p. 9). Because of low expectations of the abilities of children, the asylums were followed by sheltered workshops, vocational education, and
residential schools as a means of reducing the economic liability of those with visual impairments (Ferguson, 2001).

The creation of agencies for custodial care of consumers further fostered the assumption that they are unable to function independently or be literate (Ferguson, 2001). All these practices were considered reasonable and acceptable to society because of compassionate efforts of Christians to care for blind citizens who were considered disabled and in need of custodial care by the sighted (Ferguson, 2001). Custodial social influences, attitudes, and beliefs have been imposed on both sighted and blind individuals because “the justification for much of what we know and believe, our values and our feelings, depends on the context--biographical, historical, cultural—in which, they are embedded” (Mezirow, 2000, p. 3). World view stereotypes and beliefs that consumers have concerning blindness may impact their motivation, self-esteem regarding rehabilitation training and integration into society (Rowland & Bell, 2012). Such philanthropy beliefs “glorifies the giver but dims the recipient” (Lumadi, Maguvhe, & Dzapasi, 2012, p. 291) which then may hinder consumers from disconnecting from the custodial stigma. For example, when consumers wish to live independently, they are faced with societal gatekeepers or big brothers who feel it their duty to check with the rehabilitation agency on the capabilities of the person with the visual disability (Ferguson, 2001). Consumers “often experience negative attitudes from teachers and employers who doubt their abilities and potential” (Lumadi, et al., 2012, p. 302) and these attitudes are deeply rooted, internalized beliefs which shape how people think about society and themselves (Rowland & Bell, 2012). In all actuality, the main concern consumers have is to “see oneself and be seen by others as normal . . . when making choices about where to go, and when and how to do so” (Bell & Nicolle, 2015, abstract; Vaughan, 1993).
Rather than moving forward to guiding the consumer to the tool most used for independent travel, the long, white cane, the SL O&M instructor maintains a firm reliance on reinforcement of external behavioral successful performance, which is an extreme use of behaviorist learning theory and can easily lead to over instruction (Mettler, 1995). Thus, consumers receive the message emphasizing the dangers of independent cane travel, and this promotion of consumer dependency on the O&M instructor is an obstacle hindering self-assured achievement and self-efficacy (Mettler, 1995). This type of curriculum reduces the consumers’ self-confidence and lowers their ability to cope with vision loss (Mettler, 1995). Finally, “people who are skeptical of their ability to exercise adequate control over their actions tend to undermine their efforts in situations that tax capabilities” (Bandura, 1982, p. 129).

By the time consumers are introduced to the long, white cane in the SL curriculum, they have developed a dependency on their instructors, who, even today, are often sighted. As previously mentioned, before consumers venture out with the cane, they review the upcoming travel lesson with their O&M instructor (Mettler, 1995). Generally, before visiting new locations, sighted people review maps to create sequential step-by-step routes and mental representation of the landscape including points of interest (POIs) (Guerreiro, Ahmetovic, Kitani, & Asakawa, 2017). In SL, the O&M instructors verbally pass what they believe is pertinent information to consumers to enable memorization before the lesson begins. This information is often from the perspective of a “fully-sighted mindset about the world, or what sighted instructors imagine, to the extent that their dominant visually-grounded assumptions will permit, what a nonvisual orientation to the world might be” (Mettler, 1995, p. 31). Verbal route information, event sequence schemas, or scripts (i.e., when we open our front door and step out of the house, we experience a step down onto the walk leading to the street) are intended to
“guide the way in which we experience, feel, understand, judge, and act upon particular situations” (Mezirow, 1991, p. 48). These schemas bring attention to what the SL instructor determines is relevant. Therefore, since it is human nature for individuals to observe something and conclude quite different explanations using individualized perceptions and values with each believing their observation is accurate (Sullo, 2007), SL instructors may offer completely different information to consumers. Keep in mind that consumers gather information through their senses and understand it based on their experience and prior knowledge and then evaluate it against their personal values (Sullo, 2007), even when receiving information secondhand.

**Sighted (i.e., Human) Guide Technique**

Considering that the timing of the introduction of sighted guide is the focus of this study, it is essential that the techniques of sighted (or human) guide be described in some detail. The first step for the guide is to establish physical contact with the consumer by placing an elbow or arm on the consumer’s arm while facing in the desired direction of travel and slightly ahead of the consumer (LaGrow & Weessies, 1994). At the same time, consumers may initiate contact by gauging the location of the guide by naturally and slowly reaching the back of the hand out towards the guide and/or physically moving towards the guide (LaGrow & Weessies, 1994). It is important that consumers use the back of the hand rather than facing the palm outward to avoid touching the guide in an area that is inappropriate. To promote optimal feedback from the guide, consumers have a comfortable grasp of their guide’s arm slightly above the elbow while the guide’s upper arm is naturally relaxed (LaGrow & Weessies, 1994). Adequate reaction time is permitted with this position when the consumers’ shoulder is positioned in line with the guide, who is one step ahead (LaGrow & Weessies, 1994). A verbal cue or a physically outward rotation of the guide’s arm breaks the connection (LaGrow & Weessies, 1994). According to
LaGrow and Weessies (1994), the following curriculum sequence is most common among SL O&M instructors: (a) basic human guide, the prerequisite to all other skills to follow; (b) narrow spaces; (c) static changing sides; (d) dynamic changing sides; (e) reversing directions; (f) doorways; (g) stairways; (h) seating; and (i) accepting and/or refusing aid (p. 33). Sighted guide technique is not: (a) guiding by walking behind the consumer and physically maneuvering their body in the direction of the desired location; (b) holding hands with the consumer (AFB, 2018b); (c) having the consumer place their hand on the guide’s shoulder (AFB, 2018b); or (d) giving verbal directions to the consumer without physical contact.

**First Lesson in SDCT: Introduction of the Long, White Cane** (i.e., Independence Paradigm)

In the SDCT curriculum, newly blinded consumers are introduced to the long, white cane by the O&M instructor whereby “the shift from extrinsic to intrinsic feedback begins during the first travel lesson and is progressively refined” thereafter (Mettler, 1995, pp. 15–16). It is important for consumers to experience success quickly; that is, within the first hour (Welsh, 2005b). Via problem-solving O&M activities, consumers learn to master self-initiated correction procedures and internal error-detection mechanisms through intrinsic feedback. Here, the role of the instructor is not to monitor; rather, it is to assist consumers to quickly perform through adaption and mastering “the physical mechanics of cane travel to the cognitive skills which undergird it” (Mettler, 1995, p. 15). Through transformational knowledge, consumers allocate previous experiences and skills towards independent living post-training. Consumers first learn the tool, the long, white cane, then learn techniques to use the cane in various locations. Thus, consumers enter the Independence Paradigm, in which they are exposed to problem-solving activities where they develop mental mapping skills and transformational knowledge.

Consumers depend on their nonvisual senses for building cognitive mapping skills of their
environment which can be comprehensive representations about routes, distances, directions, and landmarks for later travel opportunities (Guerreiro et al., 2017).

**Automaticity**

Orientation and Mobility skills are considered mastered when consumers reach automaticity with the long, white cane. This means consumers have reached a subconscious level of maneuvering the cane correctly without the need to concentrate while “being able to notice unexpected obstacles and steps even when distracted and knowing how to negotiate obstacles and steps safely” (Sauerburger & Bourquin, 2010, p. 203). Without consistent cane use, opportunities to develop automaticity are lost, resulting in unrealistic and unsafe skills which decrease confidence and safety (Dodds, 1988). According to Maurer (2011), highly skilled cane travelers have the following common characteristics: (a) a high level of automaticity of routine travel skills; (b) an understanding of the importance of auditory information, (c) the comprehension and acceptance of the fact that even the best travelers make errors; and (d) the fluidity with which skilled travelers correct and recover from errors (para. 36). Maurer (2011) adds highly skilled cane travelers depend heavily on auditory information and when that happens, there are no limits to how far consumers may travel. For example, the British Broadcasting Company (BBC) News (2017) reported Tony Giles, who is blind, has traveled over 120 countries independently and stated that he travels by himself because he considers it as one of the biggest challenges he can get. By traveling independently, Giles states he gets opportunities to interact with more people, and therefore:

> if I travel with someone, particularly someone sighted, they would be doing all the work, they would be doing all the guiding, and I wouldn’t get to touch as many things, and find as many things, as I do by myself  

(British Broadcasting Company [BBC], 2017)
Dependency on a Human Guide Comparison

The first lesson in O&M is critical because it establishes the mindset of the individual which, in turn, sets the direction of independence as shown in Figure 1. At times, it is undoubtedly more convenient to use a sighted guide than to venture out independently (Ensing, 2016; LaGrow & Weessies, 1994). However, a high dependency on using a guide (sighted, blind or visually impaired) for travel severely decreases self-confidence in independent travel, hinders growth, and encourages dependency (Ferguson, 2001). On the other hand, when there is an elevated level of self-confidence, there is little or no dependency on using a guide.

![Diagram showing the relationship between dependency on a sighted/human guide and self-confidence over time.](image)

Figure 1. Dependency on using guides (Chamberlain, 2015).
Rehabilitation Training for the Blind

“For some people, a sighted guide may be their primary mobility aid” (Sighted Guides, n.d.) or accommodation for mobility. Accommodation, according to Merriam-Webster (2019), is “providing of what is needed or desired for convenience . . . to temporary conditions.” However, accommodations due to blindness can be obtained with costs attached, such as conveying negative messages about blindness, respectability (Silverman, 2014) and capabilities. Furthermore, “most of a person’s ability to improve his sense of self-efficiency is related to his having success in doing the task in question” (Welsh, 2005b). To improve self-confidence, consumers must have success in performing O&M tasks independently because “there will be times when help is not available” (Silverman, 2014, para. 8). Sighted guide is an accommodation that can limit future independence based on the amount of dependency the consumer has utilizing the technique.

According to the Annual Disability Statistics Compendium (2017), there are 3,788,786 (1.9%) Americans with a visual disability. Across the United States, there are 240 training centers where consumers learn a systematic technique to move about and orient themselves to their surroundings according to VisionAware (2018). Unfortunately, their list does not include all training centers. Currently instruction in SDCT is only offered at the following private centers: (a) Blindness: Learning In New Dimensions, Incorporated (BLIND, Inc) in Minnesota; (b) Colorado Center for the Blind (CCB); and (c) Louisiana Center for the Blind (LCB); and at the following state-operated centers: (a) Ho`opono Services for the Blind Orientation Center in Hawaii; (b) Nebraska Commission for the Blind and Visually Impaired, Orientation Center; and (c) New Mexico Commission for the Blind, Orientation Center (NBPCB, 2018). Thus, approximately 99% of rehabilitation facilities for the blind still use the traditional SL curriculum
with only 1% using the SDCT curriculum. Currently, newly blinded consumers do not receive informed choice on their O&M instructional curriculum when they enroll in a rehabilitation training center for the blind. Most often, consumers merely accept what is presented because they “believe that they are not free to choose otherwise” (Glasser, 1998, p. 6). In addition, at this time, it is uncertain if consumers are aware there are two O&M certifications with separate curriculums: SL with a COMS and SDCT with a NOMC. A side-by-side comparison of the beginning goals of the two curriculums are shown in Table 3.

Table 3

*Two Orientation and Mobility (O&M) Curriculums – Beginning Goals*

<table>
<thead>
<tr>
<th>Sequential Learning (SL)</th>
<th>Structured Discovery Cane Travel (SDCT)</th>
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</thead>
<tbody>
<tr>
<td>(Custodial Paradigm)</td>
<td>(Independence Paradigm)</td>
</tr>
<tr>
<td>1. Sighted Guide Technique</td>
<td>1. Cane Techniques:</td>
</tr>
<tr>
<td>2. Upper and Lower Body Protective Techniques</td>
<td>a. Cane grips (open palm grip and pencil</td>
</tr>
<tr>
<td></td>
<td>grip)</td>
</tr>
<tr>
<td>3. Locating dropped objects</td>
<td>b. Cane arc (height, width, even tap,</td>
</tr>
<tr>
<td></td>
<td>coverage)</td>
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<tr>
<td>4. Trailing the wall or railing</td>
<td>c. Posture, stride, instep</td>
</tr>
<tr>
<td>5. Squaring-off (Placing the back or both heels against a</td>
<td>d. Walking speed and gait</td>
</tr>
<tr>
<td>straight edge to align)</td>
<td>e. Obstacle detection while walking</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Introduction to Cane Techniques (COMS Handbook, 2018)</td>
<td>f. Detection of doorways, walkways, drop-</td>
</tr>
<tr>
<td></td>
<td>offs, and up-steps, etc.</td>
</tr>
<tr>
<td></td>
<td>(Aditya, 2004, p. 22)</td>
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</table>
Consumers who have low self-confidence in their independent travel abilities, or accept the assumption that travel is safest with a sighted guide, often return to their rehabilitation agency for additional training whenever new travel situations or obstacles present themselves (i.e., change in residence, bus route, employment, neighborhood shopping center, doctor, etc.) (Williams et al., 2013). On the other hand, when consumers have self-confidence in their independent travel by way of keen problem solving abilities, their return for additional O&M training is minimal or nonexistent. For example, Omvig (2002) received SDCT training from the Iowa Department for the Blind and thereafter moved to Chicago, New York City, Baltimore, Washington, D.C., Tucson, and Anchorage where he never returned for additional O&M training. Omvig (2002) adds that had he learned through the SL curriculum, he “would have been completely lost and helpless” (p. 96) with each new residence. As it were, Omvig (2002) states by learning by means of the structured discovery curriculum, he “developed the skill and confidence to travel alone in Des Moines” becoming “equipped to travel alone anywhere” (p. 96).

Similar to Omvig, Everett Gravel (2006) wrote in a letter to his former SDCT mobility instructor, “I’m unafraid to venture out on my own now, even when traveling in a new city” and adds, he “can be dropped off anywhere, not even knowing exactly where, and still find the location where I need to go” (p. 24-25). Thus, those who are successful at developing O&M problem-solving skills often do not require additional O&M instruction when they are faced with novel environments (Perla & O’Donnell, 2004). The use of transformational learning to independently handle unpredictable situations is the process of changing one’s frame of reference through interpretation of one’s experiences, which then helps to direct and guide one’s actions, empowering one to provide a reasonable and acceptable rationale for one’s decisions.
(Mezirow, 2000). Therefore, transformational learning is a fundamental skill necessary for practical problem-solving.

Each time a consumer returns to the rehabilitation agency for additional training, a new case is opened, and when completed, the agency receives a successful closure, known in VR as Status 26. Such closures create the illusion that the VR agency is doing a superb job even though it is the same individual who returns year after year. However, consumers may not be closed twice within the same fiscal year (NC Department of Health and Human Services, n.d.).

Table 4 displays a comparison of two state agencies that use SL curriculum, Maine and Minnesota, with two states that use the SDCT curriculum, Nebraska and New Mexico. These states were selected because their VR agencies for the blind were not combined with other state agencies and they had approximately the same number of consumers living within their states. This comparison revealed the SL states had 153 more closures and an increased budget of $8,312,719 over the SDCT states. State agencies for the blind estimate the average cost per consumer served is no higher than $8,000 whereby “the cost per participant is calculated by dividing the final grant award by the total number of eligible individuals who received VR service” (Department of Education Rehabilitation Services & Disability Research, 2017, p. 29). Unfortunately, information was not disclosed as to how many of those closures were teach-reteach situations.
Table 4

State Comparison

<table>
<thead>
<tr>
<th>Category</th>
<th>Maine and Minnesota</th>
<th>Nebraska and New Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SL</td>
<td>SDCT</td>
</tr>
<tr>
<td>Estimated consumers in 2014</td>
<td>ME 17,901</td>
<td>NE 16,752</td>
</tr>
<tr>
<td></td>
<td>MN 39,187</td>
<td>NM 38,267</td>
</tr>
<tr>
<td>Totals</td>
<td>57,088</td>
<td>55,019</td>
</tr>
<tr>
<td>Difference</td>
<td>+2,069</td>
<td></td>
</tr>
<tr>
<td>Successful closures in 2013</td>
<td>ME 109</td>
<td>NE 42</td>
</tr>
<tr>
<td></td>
<td>MN 101</td>
<td>NM 15</td>
</tr>
<tr>
<td>Totals</td>
<td>210</td>
<td>57</td>
</tr>
<tr>
<td>Difference</td>
<td>+153</td>
<td></td>
</tr>
<tr>
<td>Budget for 2013</td>
<td>ME $4,930,598</td>
<td>NE $4,443,687</td>
</tr>
<tr>
<td></td>
<td>MN $13,302,046</td>
<td>NM $5,476,238</td>
</tr>
<tr>
<td>Totals</td>
<td>$18,232,644</td>
<td>$9,919,925</td>
</tr>
<tr>
<td>Difference</td>
<td>+$8,312,719</td>
<td></td>
</tr>
</tbody>
</table>

(Annual Disability Statistics Compendium, 2015)

Comparison of Three Training Agencies in Minnesota

In order to prevent wasting governmental resources, measurement of service effectiveness needs to be evaluated with the focus on rehabilitation goals and equivalent outcomes (Vaughan, 1993). A survey was conducted in 1991 which evaluated Activity After Training of two rehabilitation training centers which use SL: Minnesota State Services for the Blind (MSSB) and Duluth Lighthouse for the Blind (DLB) with Blind: Learning In New
Dimensions (BLIND, Inc.) which used the discovery method of instruction. This survey revealed a combined total of 7% of the consumers from MSSB and DLB became employed compared to 9% from BLIND, Inc. (Vaughan, 1993). In addition, 16% of the consumers from MSSB and DLB became college students compared to 24% from BLIND, Inc. (Vaughan, 1993). Finally, 45% of the consumers from MSSB and DLB did nothing post-training compared to zero from BLIND, Inc., which demonstrates that BLIND, Inc. utilized government resources to the fullest while using the discovery approach to training (Vaughan, 1993) (Table 5). Furthermore, this data supports the discovery curriculum results in more employment outcomes, successful independent living and greater self-confidence (Vaughan, 1993).

Table 5

*Activity After Training: 1991 Post-Training (Vaughan, 1993)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Sequential Learning (SL)</th>
<th>Structured Discovery Cane Travel (SDCT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minnesota State Services for the Blind</td>
<td>57</td>
<td>50</td>
</tr>
<tr>
<td>Duluth Lighthouse for the Blind</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Blind: Learning in New Directions (Blind, Inc.)</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Total participants</td>
<td>57</td>
<td>50</td>
</tr>
<tr>
<td>Gained Employment</td>
<td>5 (3%)</td>
<td>6 (4%)</td>
</tr>
<tr>
<td></td>
<td>14 (9%)</td>
<td>11 (7%)</td>
</tr>
<tr>
<td>Went to College</td>
<td>14 (9%)</td>
<td>38 (24%)</td>
</tr>
<tr>
<td>Did Nothing</td>
<td>38 (24%)</td>
<td>33 (21%)</td>
</tr>
</tbody>
</table>
Custodial Paradigm

The O&M instructors at Hines were told their job would be a custodial position (Miyagawa, 1999). Perhaps it is because during the early Christian and Judaic periods came the birth of compassion and pity for individuals who were blind (Ferguson, 2001; Koestler, 2004; Tuttle & Tuttle, 1996). Tuttle and Tuttle (1996) report sighted people considered consumers as not being capable contributors of society and therefore felt a responsibility to care for those less fortunate. Unwittingly, many VR programs have embraced this negative view of consumers, and this misconception has been forwarded to consumers, hindering gainful employment opportunities (Omvig, 2002). Literature often portrays a demeaning or negative attitude towards blindness by depicting consumers as helpless, unhappy, and objects of pity (Blasch et al., 1997). For example, “It was my first week in Jodi’s class. She knew who I was, but I hadn’t talked to her yet. I thought she might be a little weird because she couldn’t see” (Schwartz, 1987, p. 2).

Therefore, consumers have been stigmatized and may elicit predictable atypical reactions from the public (or even the instructor) which may have a negative impact on the individual and negatively affect performance in O&M (Blasch et al., 1997). Consumers, regardless of the severity of their disability, do not want to be considered a burden, as seen by others; instead, they consider themselves as contributors to society (Kelley, 2004). All too often, however, consumers along with rehabilitation professionals, “only see the disability, not the person” (Kelley, 2004, p. 8). Thus, it is vitally important that the instructor have a positive attitude regarding consumers’ capabilities (Morais et al., 1997). According to Tuttle and Tuttle (1996), the way consumers feel about themselves strongly influences their performance, and this performance mirrors how they feel about themselves as well as the way others perceive them. This perception transitions to the instructors whose concept of blindness may parallel that of the
public, which may result in the instructor having low expectations of the capabilities of consumers (Ferguson, 2007).

**Self-Confidence**

Self-confidence, self-esteem, and self-determination are all considered forms of an individual’s sense of competence, adequacy, value, worth, and self-satisfaction in successfully meeting life’s demands (Tuttle & Tuttle, 1996). The measurement of self-confidence can be easily observed by comparison of novice drivers to expert drivers in that novice drivers tend to be slower with spasmodic movements while experts operate vehicles smoothly and methodically. The same difference can be observed in O&M between novice and expert independent travelers. Feelings of helplessness and reliance on others regarding self-confidence (Tuttle & Tuttle, 1996) can be observed in novice O&M travelers or consumers who are overly dependent on sighted guides. Such dependency can be cemented via the first lesson in SL where there may be a reinforcement of minimal expectations of consumers (LaGrow & Weessies, 1994) which lowers self-esteem. Thus, those consumers are faced with dynamic forces which cripple their sense of self-competence and self-worth, leaving them especially vulnerable (Tuttle & Tuttle, 1996) with lowered self-confidence. Transitioning from sighted guide dependency to independent travel with a cane can be difficult for some consumers especially when self-confidence is low.

On the other hand, in Iowa, deeply rooted within every aspect of rehabilitation training for consumers is the structured discovery curriculum according to Dr. Sandy Tigges (2004), former Program Administrator of the Adult Orientation and Adjustment Center of the Iowa Department for the Blind. As with approved SDCT training centers, directly after basic instruction on how to use the cane (i.e., hand grip and arc), consumers receive generalized instruction focused on problem-solving supporting their development of transformational
knowledge through environmental exploration, information gathering, and internal processing (Tigges, 2004). When encountering problem-solving opportunities, consumers are encouraged to depend on their own ingenuity instead of relying on their O&M instructor for reassurance and/or guidance (Tigges, 2004). It is believed through this curriculum, knowledge is increased and retainable, ensuring longevity, and consumers’ O&M self-confidence is better developed regarding independent travel (Tigges, 2004).

Keep in mind that self-confidence can merely be defined as the degree to which individuals feel assured and capable of their behaviors and decisions (Bearden, Hardesty, & Rose, 2001). Movement involves spatial intelligence which can easily be noticed in proficient consumers who sometimes have “greater accuracy, confidence, and skill than sighted people” (Lazear, 1999, p. 65). Thus, evaluating consumers’ independent travel habits may coincide with self-beliefs of perceived O&M abilities and skills whereby, according to Bénabou and Tirole (2002), higher self-confidence enhances action and motivation, therefore eliminating self-handicapping habits. Since actions represent personal beliefs, self-confidence and perceived ability (Schreiber & Moss, 2002), self-confidence levels can be measured through action. Although the physical components of O&M performance have been used to evaluate self-confidence through the documentation of walking speed and gait (Geruschat & Turano, 2002), this data can differ considerably when individual preferences and/or possible physical disabilities are noted. Furthermore, self-confidence can be defined and measured as the extent to which consumers feel capable and assured (Bearden et al., 2001) and this can be determined through the measurement of frequency and distance independently traveled (aka: without the assistance of a sighted guide) post-instruction.
Review of Methodological Issues

Although studies have been conducted regarding consumers, locating one explicitly focused on O&M curriculums has been difficult. According to Baldwin (2016), there is no research or central philosophy that the O&M profession can use to justify what is considered the best practice curriculum. However, one comparison attempt was made, as an afterthought, when Aditya (2004) compared the two O&M certifications by reviewing the cane length of the participants, which is one of the minor differences between SL and SDCT as previously discussed. Furthermore, the contrast between independent travel versus sighted guide was touched upon in Shimizu’s (2009) study conducted in Japan, although the O&M curriculum was not noted. Finally, a study that closely resembles this study was a comparison conducted by Cmar (2015) which investigated campus travel versus community travel for young adults, concluding that campus travel skills mostly involve rote learning or human guide while community travel involved higher cognitive abilities and independent skills. Therefore, a study needed to be conducted to (a) explore relationships of when sighted/human guide instruction is presented to newly blinded consumers to determine if predictions can be made regarding their self-confidence levels post-O&M training and (b) if this relationship could be exposed through a comparison study focused on the travel habits of consumers post-O&M instruction of either the SDCT or SL curriculums. Such a comparison study might also reveal any strengths or weaknesses of the SL and SDCT curriculums used by O&M instructors within the United States.

Synthesis of Research Findings

It has been difficult to attain any progress in a reliable and/or valid approach to O&M assessments (Geruschat & De L’Aune, 1989; Long, 1990) and there have been few studies linked to the investigation of the benefits of O&M instruction (Kim, Smith, & Connor, 2016; Kuyk et
al., 2004; Soong, Lovie-Kitchin, & Brown, 2001). Kuyk et al., (2004) conducted a pre- and post-questionnaire investigating older veterans and concluded there was a substantial improvement in self-confidence in self-reported mobility functions of adults with visual impairments after their O&M training. Kim, et al. (2016) later reported mixed results of the functional effects of O&M according to their performance-based pilot research involving only six participants, despite their acceptance and belief in O&M instruction. Furthermore, studies or types of measurement to precisely determine which curriculum of instruction yields the highest level of self-confidence among newly blinded adults was scarce. This may be due to there being only one higher educational SDCT training program in existence since 1997. Since extensive research discovered that studies evaluating the feasibility or effectiveness of O&M training were scarce, unestablished, or concluded with mixed results (Kuyk et al., 2004; Ballemans et al., 2011; Kim et al., 2016), it is understandable that consumers and instructors express divergent views regarding the O&M curriculum they learned either personally or through their university program (Wolf-Branigin et al., 2000).

The literature review demonstrates a need to investigate the two O&M curriculums to (a) compare O&M performance among consumers who offer a difference in variables (Long, 1990) and to (b) settle the underlying debate among O&M professionals (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Koestler, 1976; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018) as to which curriculum yields the highest levels of self-confidence among consumers post-training. As with learning theorists, this deliberation continues as to which approach is “better”: the guided (SL) or discovery (SDCT) method (Aditya, 2004; Blasch et al., 1997; Mettler, 1995). This study is not a comparison to determine which certification is better, nor will it attempt to conclude that a blind instructor is superior to a
sighted one. Rather, the purpose of this study is to determine which curriculum of instruction offers higher self-confidence because according to Fazzi and Barlow (2017), “research has not been conducted to determine the efficacy of one approach over another” (p. 96).

Considering both curriculums offer cane instruction, this study may determine that there is no difference in the crucial timing of the introduction of the guide technique. A variety of methods have been utilized to measure O&M performance which includes the measurement of travel time from one point to another, physical contact of cane or body, the number of steps and curb incidents, and veering (Dodds, 1988; Lumadi et al., 2012). Although O&M instructors tailor instruction based on an evaluation of the consumers’ O&M needs and skills to develop a comprehensive understanding of their O&M capabilities and deficits, as there is no protocol for the assessment or evaluation of consumer progress, nor are there any known studies focused on the timing of the introduction to sighted or human guide technique (Geruschat & De L’Aune, 1989).

Several limitations exist when measuring O&M, such as the small population pool as Kim et al. (2016) discovered. The most substantial challenge for researchers is to ensure a valid measurement which is essential in conducting a study that precisely measures what it intends to measure (Long, 1990). In O&M, research needs to be conducted within the consumers’ natural environments (Long, 1990) which support the necessity for this research since it documents consumers’ travel behaviors post-training in their variety of environments.

Critique of Previous Research

Orientation and Mobility research is necessary because it contributes to the understanding of the effectiveness of improvements and the nature of the human ability to maneuver from one location to another (Long, 1990). However, research is currently inadequate regarding
exploration of the underlying concerns that consumers have regarding choices in mobility options (Ball & Nicolle, 2015). Furthermore, research has focused on two diverse categories or approaches which include (a) frequency counts of key behaviors during mobility such as obstacle avoidance (e.g., cane or body contacts) and (b) indirect measures which evaluate (a) secondary tasks during travel such as cognitive or mental effort and (b) global tasks, which document frequency of movement within the home or community across time (Long, 1990). Frequency counts relate primarily to mobility safety through utilizing the Productive Walking Index (PWI) formula (action time walking a travel route divided by total time on the route) (Long, 1990). Dodds, Carter, & Howarth (1983) found this method of study inconclusive due to consumers’ personal preferences and the fact that a route traveled is never walked precisely the same.

One study was conducted with young transition age consumers who may shed light on O&M for adults. Cmar (2015) questioned why there is a high rate of youths with visual impairments who attend post-secondary schools, yet there is a low rate of employment among those graduates. By means of a national longitudinal transition study, two multivariate logistic regression analyses investigated the employment outcomes of young consumers based on their skills of O&M and outcome expectations (Cmar, 2015). According to Cmar (2015), along with having a positive self-belief about work for pay, employed consumers were those who received high community travel scores suggesting that independent travel training outside the home environment (including public transportation, air, train) could predict successful employment after graduation. In addition, Cmar (2015) states to increase the employment rates of working-age consumers (currently approximately 38% compared to 76% of adults without disabilities), O&M professionals would need to provide instruction to consumers within their natural environments and throughout their community.
However, the primary concern for consumers when traveling within their community was the appearance of perceived normality which influences one’s behavior according to Ball and Nicolle (2015). Overcoming this fear, through O&M training, supports how independent travel skills off campus or outside one’s comfort zone predicts full-time employment while skills only on campus (or rehabilitation facilities) decrease this likelihood (Cmar, 2015). Limited travel skills or training which is only conducted on campus hinders problem-solving opportunities in novice environments. Thus, campus travel skills may not be applicable in the community where more complex problem-solving skills (often exercised in the SDCT curriculum) are necessary. Although Cmar’s (2015) study is compelling, it does not note consumers’ self-confidence in their independent travel since it did not reveal if the consumer traveled with or without a guide off campus.

A comparison performance-based study conducted by Soong, et al. (2001), regarding the improvement of consumers’ mobility immediately post-training determined the necessity of consumers to have practice opportunities to develop sensory and motor skills. These individuals could retrieve the skills from their long-term memory through transformational knowledge, requiring less mental effort (Soong et al., 2001). Two groups of participants who had no previous O&M training—(a) 19 consumers and (b) 18 sighted individuals who were blindfolded—were compared to discriminate heights of objects by using a long cane. This study confirmed the superior performance of consumers, suggesting that blindfolded normal-sighted individuals “did not develop the sensory and motor skills of their visually impaired counterparts” (Soong et al., 2001, para. 41).

According to Kappan (1994), minimal experience with occluded disability awareness activities has the potential to create false impressions and safety concerns while maneuvering
about an area without proper training, and this limited experience leads to misconceptions as to the true capabilities of consumers. Soong et al., (2001) concluded that O&M training helps consumers gain skills in independent travel through “anecdotal evidence reported by low-vision rehabilitation workers and visually impaired adults;” however, to their knowledge, there have been no studies which have directly investigated any benefits of O&M training (para. 43). Their investigation supports the need for a study to measure self-confidence of consumers post-O&M training rather than of occluded sighted individuals who, at any time, can remove their sleep-shades as individual situations and personal values dictate. To compare two O&M curriculums post-training cannot be simulated using occluded sighted participants.

A random performance study by Guerreiro, et al. (2017), which focused on smartphone-based virtual navigation, revealed fourteen consumers (13 legally congenitally blind and one low vision) had the “ability to build an accurate sequential representation of the route structure, complemented with POIs [Points of Interest], along the route” (para. 84). Guerreiro et al. (2017) add that these individuals used POIs as landmarks to help them a guide to destinations. Although participants were provided precise sequential information, they were unable to retain information regarding relative block lengths, which supports the need for the development of mental mapping skills to enable independent route retention, even though 93% of the participants regularly traveled without sighted guides (Guerreiro et al., 2017). The study conducted by Guerreiro, et al. (2017) took place outside; however, according to a study by Williams et al. (2013), consumers often rely on the assistance of sighted guides when traveling indoors.

With recent technology, virtual environments can be available for consumers, according to a random assignment experimental study by Lahav, Schloerb, and Srinivasan (2015), who conducted qualitative and quantitative research examining possible methods of integrating
BlindAid to assist consumers with the development of O&M skills (abstract). Sixteen totally blind or blindfolded participants explored appropriate O&M strategies to achieve and apply efficient cognitive mapping skills and demonstrated strong attention to auditory feedback while doing so (Lahav et al., 2015). Lahav et al. (2015) concluded that BlindAid might help participants with practicing O&M skills without encountering real spaces. However, excluding the possibility of physically interacting with the environment removes possibilities to problem-solve actively or to incorporate hands-on experiences through transformational learning. Although the previous two studies assist with orientation, they did not focus on consumers’ physical mobility skills. Keep in mind that orientation has two interrelated metaphorical senses, the first being “a positioning and awareness of the location where one stands relative to the world” and the second “a horizon of meaning that points the direction towards the desired destination” (Sarid, 2012, p. 245). Therefore, orientation is the perception of space and relationships to neighboring objects (Koestler, 2004) while mobility is “the capacity or facility to movement” (Jacobson, 1993, p. 3) or actual locomotion to transfer from one position or location to another (Koestler, 2004).

Williams et al. (2013), who conducted a qualitative narrative study via 30 telephone interviews, discovered sighted guide was the preferred method of navigation in new or unfamiliar indoor locations, but after familiarity with the area, the guide was no longer necessary. In addition, Williams et al. (2013) found that one participant did not feel comfortable with asking strangers to be a sighted guide because of safety concerns while another enjoyed the opportunity to meet new people. Furthermore, he added that some participants preferred not to or found no need to use any electronic navigation because they were rarely alone. Overall Williams et al. (2013) identified two navigation influences when making individual decisions
which include: (a) Scenario (characteristic and geographical location of travel); and (b) Personality (individual characteristics, views and attitudes regarding high-tech and/or low-tech options such as cane, human guide or guide dog). This study did not discuss which O&M training the participants received. Although it has been noted, O&M studies on consumers’ training are scarce (Zijlstra et al., 2012), studies do conclude there are self-management approaches which are beneficial for consumers. Zijlstra et al. (2012) states “self-management interventions are developed on the basis of psychological theories, such as the social-cognitive theory, which aims to enhance clients’ self-efficacy beliefs” (para. 4) whereby consumers are taught problem-solving skills and adaptive strategies which may effectively contribute to low vision rehabilitation.

Based on this review of the literature, which developed a unique conceptual framework using national longitudinal transition studies, comparison studies and surveys to understand the needs of consumers, there is sufficient reason to think that an investigation examining the impact of O&M curriculum may yield significant findings. Additionally, the review of literature has provided strong support for pursuing a research project to answer the multi-part research question. That is: Can a comparison study documenting the distance and frequency consumers travel away from their home base determine if the timing of sighted guide instruction plays a pivotal component in consumers’ self-confidence of their independent travel and by doing so expose a difference between the curriculums of Sequential Learning and Structured Discovery Cane Travel?

Summary

Sequential Learning (SL) has been the primary curriculum used for the instruction of O&M throughout the United States since the 1940s until Structured Discovery Cane Travel
(SDCT) made its official debut in 1997. There are significant differences between the two curriculums aside from their foundation; for example, SL was designed by sighted individuals for blind military veterans while SDCT was designed by and for blind civilians (Omvig, 2005). Furthermore, each curriculum supports its own cane of choice (i.e., cane length, handle, and tip). Finally, the introduction of the guide technique to consumers is critical in setting the independence philosophy; sighted guide technique is the first lesson consumers receive in the SL curriculum while cane basics are the first in SDCT. Thereafter, the lessons in the SL curriculum involve fixed-routes designed by the instructor while in SDCT, routes are based on consumers’ desires.

Just because the SL curriculum is preeminent and taught in all, but one university does not make it superior. It is for the better good of all taxpayers (sighted, blind or low vision citizens who contribute to state-operated rehabilitation training centers) to know which curriculum yields the best results. Consumer performance in O&M has been studied through the measurement of instructor observation of the individuals’ walking speed, reflection, arm swing, gait, and hand tension (Geruschat & Turano, 2002). Studies in this literature review confirm that there is a scarcity of research available which compares the curriculums of SL and SDCT to determine which curriculum offers consumers the highest level of O&M self-confidence.

Consumers are not receiving informed choice regarding their O&M options at various rehabilitation agencies throughout the country unless they actively seek information for themselves (Aditya, 2004). Even then, consumers comprehend they are not free to make a choice (Glasser, 1998). Informed choice is the challenge that is necessary to respect consumers’ dignity, so they are not faced in a catch-22 position where the options presented are not truly accurate (Storey, 2005). Although consumers new to O&M rehabilitation now have a choice on
rehabilitation agencies, currently this freedom remains out of reach for many consumers throughout the United States (Aditya, 2004) mainly because of the unequal availability of SDCT options compared to the availability of SL options.

Furthermore, if the question of choice is discussed, the option to receive SDCT is only available in a few states, so consumers are forced to travel to another state or city to obtain the alternative curriculum (Aditya, 2004). Also, because of services being primarily subsidized by state and federal funding from VR agencies, consumers may be inhibited by agency practice and policy rather than choice (Aditya, 2004) requiring them to attend training programs which are under contract with their state agency (Vaughan, 1993). Therefore, unless consumers are persistent and well informed, they do not have the benefit of choice (Aditya, 2004). Thus, consumers blindly accept what is offered through their local rehabilitation agency without knowledge of a difference between the traditional (SL) and nontraditional (SDCT) curriculums. Some consumers (a) merely accept what is convenient, allowing convenience to outweigh performance in their informed choice (Hibbard & Peters, 2003), (b) make uninformed choices without prior knowledge and thus fail to be empowered and sell themselves short (Omvig, 2002), or (c) find themselves embedded within a program with a negative philosophy about blindness (Vaughan, 1993).

Just as in A Class Divided (Frontline, 1985), the first lesson in O&M establishes the philosophical foundation that directs the mindset of the consumer throughout the remaining lessons and beyond. Therefore, this study is necessary to determine if and when a guide is introduced to consumers hinders the development of self-confidence which subsequently leads consumers to the Custodial Paradigm, or if there is no significant difference in independent travel for consumers and hence they enter the Independence Paradigm. In particular, this study
attempts to measure which curriculum of instruction, (a) Sequential Learning (SL) or (b) Structured Discovery Cane Travel (SDCT), yields the highest level of self-confidence for consumers. That is, post instruction, from which curriculum do consumers travel *independently* (meaning without a guide) more often and further from their home base? Such a comparison study may reveal the strengths or weakness of the SL and SDCT curriculums used by O&M instructors within the United States.
Chapter 3: Methodology

Orientation and Mobility (O&M) instructors provide specialized training to consumers on how to travel safely and efficiently to and within a myriad of locations using the long, white cane as their primary tool (Crudden, 2015). Additionally, O&M training (i.e., the creation of creative, practical approaches, and problem-solving techniques) has progressed by means of the collective travel experiences of both the consumers as well as their O&M instructors to provide the richest of knowledge regarding the issues of O&M (Long, 1990; Long & Giudice, 2010).

Unfortunately, research on O&M as a human profession has a short history according to Long (1990) and O&M instructional variables, that is the way instruction is structured, delivered and evaluated, have been virtually ignored because of the wide acceptance of traditional O&M instruction. Long-term O&M effects have only been an interest for researchers since the late 1980s (O’Donnell, 1988). However, it is through critical research that new and traditional instructional strategies may be assessed to determine which best practices are most effective (Long, 1990). Currently, knowledge is limited regarding the efficacy of O&M curriculums used by instructors and this knowledge plays a critical role in the quality of life among consumers (Long, 1990) because consumer growth conducted during O&M instruction is considered a critical component in the advancement of the O&M profession (Geruschat & De L’Aune, 1989).

Furthermore, Herbert (2000) states there are no experimental studies conducted which investigate the effectiveness of a variety of sequential learning methods.

Because of the lack of information regarding the effectiveness of the O&M curriculum differences between SL and SDCT, along with the instructional bias or perceptions of priorities by O&M stakeholders (Vaughan, 1993; Wall Emerson & Corn, 2006), consumer choice is frequently not offered to newly blinded consumers. According to Glasser (1998), choice theory
is internal control psychology that explains how and why people make choices that determine the
direction of their lives. Considering there are now two options which possibly offer considerably
different outcomes, choice theory is the conceptual framework for this study because consumers
may not be informed of the O&M curricula. Studies indicate focus groups expressed
unawareness of various options and were not given any choices, leading to deficiencies in
available information (Coulter et al., 1999). Furthermore, studies conclude consumer choice
may be the critical turning point to increase the effectiveness of the training (Coulter et al., 1999;
Kosciulek, 2004). Change can only occur through solid research to determine if the status quo
curriculum, that is Sequential Learning (SL), hinders self-confidence and independent travel by
overly stressing sighted guide instruction prior to introducing the long, white cane. Glasser
(1998) notes that ideas or systems of belief direct or oversee behavior. This principle holds true
for both the consumer and the O&M instructor, and their combined beliefs affect the quality
world of individuals with visual impairments.

A comparison survey of consumers who received O&M training from instructors who
used either the SL curriculum or the SDCT curriculum was necessary to determine which
curriculum yields the highest level of self-confidence. Only then would current O&M instructors
be able to offer consumers clear, researched-based choices. This determination could be done
through a study that compared the distance and frequency consumers traveled post-O&M
training independently. Thus, through this study consumers will have the power and opportunity
to prove that their level of self-confidence dictates the best curriculum for instructing O&M.

**Purpose of the Study**

The purpose of this comparison study was to determine which curriculum of Orientation
and Mobility instruction, (a) Sequential Learning (SL) or (b) Structured Discovery Cane Travel
(SDCT), yields the highest level of self-confidence for individuals who are blind or visually impaired within the United States. Investigating instructional variables is critical (Long, 1990) and is most advantageous for rehabilitation agencies in their educational planning of effective O&M instruction. However, the method of how instruction was delivered or evaluated has been virtually ignored by scholarly researchers (Long, 1990) and “despite attempts, there is no standardized measure to evaluate O&M action” (Deverell, 2011, p. 74).

The fundamental reason for conducting this study was to determine if the timing of sighted guide instruction within the curriculum could predict consumers’ levels of self-confidence through their independent travel post-training. Sequential Learning (SL) curriculum places the instruction of sighted guide before introduction to the long, white cane and considers it a prerequisite to cane instruction even though, according to Pogrund and Rosen (1989) and Fazzi and Barlow (2017), sighted guide skills are not prerequisites to learning cane travel. On the other hand, the long, white cane is introduced to consumers during the first lesson in the SDCT curriculum, and as Pogrund and Rosen (1989) point out, the cane is the mobility tool used by consumers their entire life.

**Research Question**

Regarding a comparison of the two Orientation and Mobility (O&M) training curriculums, that is (a) Sequential Learning (SL) and (b) Structured Discovery Cane Travel (SDCT), generally at what distance and frequency do consumers travel independently post-training and how does this differ between the two curriculums?

**Hypotheses**

It is the researcher’s hypothesis that consumers’ self-confidence levels of independent travel post-training is based on the first O&M lesson they received in rehabilitation facilities.
Sequential Learning (SL) curriculum begins with sighted/human guide procedures while the Structured Discovery Cane Travel (SDCT) curriculum focuses on techniques of the long, white cane. Pivotal timing of these instructional goals is instrumental whereby affecting self-confidence levels and this relationship can be exposed through a comparison study focused on consumers’ independent travel habits post-O&M instruction. The basis for this hypothesis is data collected from Annual Disability Statistics Compendium (2015), Activity After Training study (Vaughan, 1993), along with the literature review discussed in Chapter 2, whereby sighted guide accommodations promote the custodial paradigm while the long, white cane encourages the independence paradigm.

Research Design

This was a comparison study conducted mostly by way of a Likert scale type survey of two consumer groups: (a) those who received Orientation and Mobility (O&M) instruction via the Sequential Learning (SL) curriculum with Certified Orientation and Mobility Instructors (COMS) and (b) those who received O&M instruction via the Structured Discovery Cane Travel (SDCT) curriculum with National Orientation and Mobility Certified (NOMC) instructors. Both the Likert scale and paired sample t-tests were in Aditya’s (2004) study to compare the two O&M certifications; therefore, those same methods were used in this comparative study of the two O&M curriculums. Since the participants were blind or visually impaired, the survey selections were listed, and there were some checklists included in this survey for which consumers only had a few choices. In this comparison study, consumers who received the SL O&M curriculum were considered Group One because of their long history of formal existence while the consumers who received the SDCT curriculum were labeled Group Two.
**Target Population, Sampling Method and Related Procedures**

**Target Population**

The target population for this survey included consumers from throughout the United States. Study participants were those who (a) were blind or visually impaired (self-reported); (b) completed *formal Orientation and Mobility (O&M) training in or after 1999 (* = Formal training consisted of instruction received in a state or private rehabilitation training center designed for individuals with visual impairments.); (c) did not receive any formal Orientation and Mobility training prior to attending a private or state rehabilitation training center; (d) were between the ages of 20 and 70 (including the age of 20 and the age of 70); (e) did not use a long, white cane for mobility prior to the age of 20; (f) were not current or former O&M instructors; and (g) were not guide dog users. Participants who had severe additional disabilities (hearing, mental or physical impairments) which hindered independent travel were excluded from the survey whereas individuals with additional minor disabilities who traveled independently were encouraged to take the survey.

**Sampling Method**

Because of the rather small targeted population pool of consumers (i.e., individuals who are blind or visually impaired), it was critical to utilize all potential avenues to reach as many participants as possible. Considering the study focused on consumers post their O&M training, they most likely integrated back into the mainstream population, making the location of such participants difficult. Seeking SDCT participants commenced prior to seeking SL participants because the SDCT participant pool was smaller and more difficult to locate due to the short existence of SDCT. Although it was anticipated that SDCT participants might not equal the
number of SL participants, this problem was addressed by terminating the acceptance of completed surveys when there was an equal amount of both SL and SDCT participants.

Participants were individuals who willingly responded to a call for volunteers through outreach emails, social media, consumer websites, or word-of-mouth through their family, friends, rehabilitation counselors, or former O&M instructors. Snowball sampling was successful in previous studies focused on consumers (Williams et al., 2013). Thus, the overall number of the participants depended on (a) a wide variety of outreach methods and (b) consumers’ willingness to complete the survey. Many attempts were made to outreach to participants beginning with electronically contacting the two professional O&M certifying organizations, (a) the National Blindness Professional Certification Board (NBPCB), followed by (b) the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP). They were requested to forward the survey to their O&M instructors with the invitation to pass it to their former consumers. Second, the presidents or representatives of the two nation-wide consumer organizations, National Federation of the Blind (NFB) and the American Council of the Blind (ACB), were contacted with the request to electronically post the survey in addition to forwarding the survey to their state chapter presidents to distribute to their members. Third, the same request was sent to private training centers and State Rehabilitation Agencies serving individuals who are blind or visually impaired. Fourth, the National Research and Training Center (NRTC), a registry of volunteer consumers willing to participate in research, was contacted requesting their participation with this research (Crudden et al., 2017). Fifth, the Visually Impaired Service Team (VIST) coordinators of the VA were contacted. Finally, requests for participants by way of social networking sites such as Facebook and Twitter were posted. Furthermore, invitations were extended to everyone to invite or forward the survey link
to friends and relatives with visual impairments, and to professionals working with individuals with visual impairments.

Taking the survey outside of Qualtrics (i.e., paper or telephone) was not an option given to participants. Also, to encourage participants to volunteer their time to complete the survey, they had the option at the end of the survey to submit their names and addresses to be placed into a drawing to receive one of eight $25 VISA gift cards. Participants were informed that the drawing would take place after the conclusion of the study and that their personal contact information, which was needed for the drawing, would remain confidential and would be destroyed directly after the drawing.

Since this study represented participants who were willing to respond to the survey, there was a strong representation of American consumers who received formal O&M, thus creating generalizable results. It was the goal of this study to meet an equal quota sample of the population, as close as possible, of the number of consumers who have received the SL curriculum compared to those who received the SDCT. Thus the actual quota was not measured by meeting a targeted number of participants; rather the quota was measured regarding the best possible balance between the two participant categories, SL and SDCT.

**Related Procedures**

Because of the difficulty of locating a previous comparison study of the two types of O&M curriculums (SL versus SDCT), creating a new survey was necessary. Based on the PI’s experience as an O&M instructor, she created the survey instrument. This survey was modeled after other surveys conducted for individuals who were blind or visually impaired. Dr. Edward Bell, Professional Development and Research Institute on Blindness at Louisiana Tech University and a member of the Blindness Professional Certification Board, is blind and has
conducted several surveys through both SurveyMonkey or Qualtrics. He validated these instruments as excellent tools used for research purposes because they were accessible for individuals with visual impairments through Job Access With Speech (JAWS), ZoomText, and/or WindowEYES (Bell, 2018). Section 508 of the Rehabilitation Act of 1973 dictates that technology needs to be accessible for people with disabilities and Qualtrics has met this accessibility.

This survey instrument was validated by three experts in the field of rehabilitation for the blind and visually impaired. Validators ensure that a survey instrument will accurately measure what it intends to calculate (Long, 1990). Three validators, who have extensive experience in working with consumers, include two who are blind and one who is sighted. Their curricula vitae document strong professional expertise in the area of rehabilitation, including O&M in state and private rehabilitation centers throughout the country. The first survey validator holds a Ph.D. in Education Administration and Supervision and was appointed to serve as the Commissioner of the Rehabilitation Services Administration through the United States Department of Education.

The second survey validator attended the Orientation and Adjustment Center for Blind Adults at the Iowa Commission for the Blind in Des Moines, where this validator received structured discovery learning. The validator was an elementary teacher in the validator’s state and later, she became the founder of a private training center for the blind which was modeled after Iowa Commission for the Blind. This survey validator was appointed to serve a high level leadership role in the area of rehabilitation within the U.S. Department of Education. In addition, this validator was appointed to a U.S. presidential committee that supports blind and disabled individuals.
The third survey validator served as the Program Specialist at a state rehabilitation agency for consumers. She coordinated the statewide Independent Living (IL) program, including peer support networks, for older state residents who were blind or visually impaired. Also, this validator served as a Special Needs/Orientation Counselor providing training and counseling to older residents who were adjusting to their vision loss.

**Pilot Study**

Examination of the survey instrument was deemed appropriate by three expert validators who have extensive experience in the field of blindness rehabilitation, as discussed above. According to Creswell (2014), the purpose of pilot studies is to “establish the content validity of scores on an instrument and to improve questions, format, and scales” if necessary (p. 161). In order to mirror the actual study with a reduced scale of participants, the pilot study targeted consumers who received training from either of the two O&M curriculums focusing on the following two states: (a) Montana as the SL curriculum and (b) Ho’opono Services for the Blind Orientation Center in Hawaii as the SDCT curriculum. These states were selected because Hawaii was an approved SDCT training center (NBPCB, 2018) and both states having a similar number of citizens with visual impairments as noted on the Annual Disability Statistics Compendium (2015). I sent out a call for volunteers through snowball sampling which was successful in previous studies focused on consumers (Williams et al., 2013). Overall, the number of the participants depended on (a) a wide variety of outreach methods and (b) on consumers’ willingness to complete the survey. Seeking SDCT participants commenced before seeking SL participants because the SDCT participant pool was smaller and anticipated to be harder to locate.
According to Trochim (2001), “snowball sampling is especially useful when . . . trying to reach populations that are inaccessible or hard to find” (p. 58), and Harris (2014) states the quality of the sample is more important than the size. Five participants responded to the call for volunteers for this pilot study. One SL participant from Montana and 4 SDCT participants from Hawaii. In an attempt to get more SL surveys, additional emails were sent to Montana targets. When consumers on social media learned of the study, three more SL surveys were submitted from outside of the two targeted states. After analyzing the data, and reviewing the survey feedback, from the 8 pilot participants, the PI determined no changes to the survey instrument were needed. Therefore, the feedback provided by the participants and the three survey validators who are experts in the field of O&M and SDCT was sufficient to validate the survey instrument.

**Instrumentation**

Qualtrics was the chosen instrument for this research because of its accessibility for consumers via speech and enlargement software (Bell, 2018) as well as it being compliant with Section 508 of the Rehabilitation Act of 1973. The self-created instrument (see appendix C) began with a note to the participants thanking them for their time to fill out the O&M survey and informing them that although the Principal Investigator (PI) was not permitted to pay them for their time, she was able to offer them the opportunity to submit their name and address for a special drawing where they might receive one of eight $25 Visa gift cards. Potential participants reviewed the targeted population for the survey, and if they met those requirements, they made a confirming electronic checkmark and were willing to participate in the survey.

Eligible participants began with “Part One: Demographics” where they filled out general information regarding themselves such as their age, gender, race, the highest level of education,
blind or visually impaired status, living arrangement, and military service. After that, participants were electronically taken to “Part Two: *Formal Orientation and Mobility Training” where they were reminded that *formal* training consists of instruction received in a state or private rehabilitation training center designed for individuals with visual impairments. Here, participants answered questions regarding the name of their formalized training center as well as the name of their instructor and, if known, their instructor’s O&M certification. Participants noted when their O&M training was completed and previous knowledge regarding O&M prior to training. Most importantly, this is where participants discussed their formal O&M and where they revealed whether the first lesson they received was sighted guide or the long white cane. Following this section, participants were directed to “Part Three: Post Formal Orientation and Mobility Training” where they discussed their current travel skills, habits, and abilities.

The third part of the survey consisted of two sections and was considered the essence of the survey. Participants were reminded of the following: (a) *Independently* means *without a sighted or human guide*; (b) Traveling with a sighted guide is when the guide is the leader and they are in physical contact with the guide by holding/touching the guide’s elbow, shoulder, hand, back, and so on; (c) traveling by taxi, Uber, or any public transportation (bus, train, plane, subway, etc.) is not considered traveling with a guide unless the guide (as described above) is present. In the first section, participants responded to questions regarding whenever they left their home environment, and their answer choices correspond to a Likert scale: Never, Sometimes, Always, I Don’t Recall, or N/A. Questions included specific situations regarding their independent travel. Examples of these questions included: always traveling with their cane; only traveling with a sighted guide; walking various distances from their home; independently crossing uncontrolled and controlled streets. There were also questions which involved: taking
public transportation; traveling outside their city/town and state; traveling to visit friends/relatives; whether or not they independently traveled whenever and wherever they wanted (within means) and whether they traveled for their job (paid or volunteer) or higher education classes (community college or university).

In the second section of Part Three, participants rated statements based on how true they were in representing themselves, and these ratings also corresponded to a Likert scale with the lower number being absolutely not true and the higher number indicating the statement is absolutely very true. Here, participants rated statements such as: “I always travel outside my home using a long, white cane,” “I never travel outside my home using a long, white cane,” “I only leave my home when I have a guide,” and “I would rather travel independently than with a guide whenever I leave my home.” This section focused on self-confidence with participants rating statements regarding how they felt about traveling with a cane or sighted guide and being in public with a cane, whether they felt the cane was a tool for independent travel and/or a symbol of independence, whether they traveled to novel places with their cane or with a guide, and if they would rather stay home than venture out independently. There were a few final questions regarding if and how often they returned for additional O&M training as well as their primary method of travel post their formal training, such as (a) I use a guide whenever I leave my home environment, (b) I can no longer use the cane because___, (c) I continue to use a cane whenever I leave my home environment. Finally, if the participant received any assistance in completing this survey (i.e., reader or scribe), that was noted here.

After Part Three, participants were electronically directed to “Part Four: Optional” where they were reminded that their answers were confidential. Here they were given the option to make any comments regarding their travel or rehabilitation training that were not addressed in
the survey. Also, they were given the option to identify which consumer organization they belonged to and entered their names and addresses for the drawing if they wanted to do so. Finally, the participants were thanked again for completing the survey.

Data Collection

Orientation and Mobility have been objectively studied since the late 1960s with the most common method being performance-based (walking speed or evaluation of unwanted contacts) (Geruschat & De L’Aune, 1989). Since consumers’ perceptions of self-confidence are critical to mobility performance (Geruschat & Turano, 2002), data collection has focused mainly on observations of the consumers’ physical actions during the mobility quest (Connors, Christil, Sanchez, & Merabet, 2014; Geruschat & De L’Aune, 1989; Geruschat & Turano, 2002; Guerreiro et al., 2017; Lahav et al., 2015; Maurer, 2011; Soong et al., 2001). Other forms of data collection included telephone interviews (Bell & Mino, 2011; Casten et al., 2005; Wainapel, 1989; Williams et al., 2013) and/or surveys (Bell & Mino, 2011; Cmar, 2015; Shimizu, 2009). Email interviews were also used (Ball & Nicolle, 2015) in addition to public forums or focus groups (Ball & Nicolle, 2015; Crudden, 2015). Participants for previous studies were either randomly selected (Cmar, 2015; Guerreiro et al., 2017), targeted civilian consumers (Bell & Mino, 2011; Casten et al., 2005; Lahav et al., 2015; Maurer, 2011; Soong et al., 2001; Wainapel, 1989), targeted veteran consumers (Geruschat & De L’Aune, 1989) or consumers responding to internet websites or electronic mailings (Shimizu, 2009; Williams et al., 2013). Studies were either qualitative, quantitative or mixed (Lahav et al., 2015).

To determine self-confidence levels in SL versus SDCT post-O&M instruction, participants (i.e., consumers) were mainly recruited through internet websites and social media (Facebook and Twitter). Notices announcing the study were sent to the two most popular
consumer organizations (the National Federation of the Blind and the American Council of the Blind). Announcements of the study were also sent to the nation’s private and state rehabilitation centers for the blind as well as the headquarters of the only two certifying bodies in the United States, (a) Academy for Certification of Vision Rehabilitation and Education Professionals for SL, and (b) National Blindness Professional Certification Board for SDCT. In addition, the National Research and Training Center (NRTC), a registry of volunteer consumers willing to participate in research, were contacted for this study (Crudden et al., 2017) as well as the VA’s Visually Impaired Service Team (VIST) coordinators.

Data collected was through a self-reported survey primarily measured by way of a Likert scale. This method was successful in many of the previous studies with consumers throughout the world. Although telephone interviews have been used in the past, they were not used in this study to ensure reliability. All data collected was through electronic reporting.

**Operationalization of Variables**

Two main variables were necessary for this comparison study: individuals who are blind or visually impaired who received O&M instruction via either (a) instructors who use the Sequential Learning (SL) curriculum; or (b) instructors who use the Structured Discovery Cane Travel (SDCT) method. This information was divulged when participants filled out the survey. However, should the participant be unaware of the certification of their O&M instructor, the information was revealed when consumers listed their instructor's name and/or the names of their rehabilitation training centers. All current Certified Orientation and Mobility Specialists (COMS) are listed on the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP) website (https://www.acvrep.org/verify), just as all current National Orientation and Mobility Certified (NOMC) instructors are listed on the National Blindness
Professional Certification Board website (https://www.nbpcb.org/pages/lookup.php). As needed, investigation of and emails were sent to the rehabilitation agency for clarification. Thus, there were ways to confirm the type of O&M curriculum/training the participants received.

Some information, such as actual visual acuity, is of no concern in this survey except to ensure the participant was blind or visually impaired even though, according to Long (1990), visual acuity was the most common clinical measurement in past research even though, visual acuity is “unrelated to mobility performance” (p. 95). Additionally, this study did not consider the personal physical performance of O&M, such as the consumers’ need to count steps or stairs; the improper gait of the consumers; the consumers’ travel time to reach destinations; or the number of contacts consumers made with body or cane to objects, which was the primary mobility measurement in previous studies as reported by Geruschat and De L’Aune (1989).

Many variables were eliminated during the predetermination screening portion of the survey. For example, including only participants of age 20 and older ensured they did not receive O&M prior to the beginning of the SDCT paradigm and ensured the two O&M training options were available to all consumers. Excluding participants over 71 from this study ensured participants were within the range for either employment or volunteer opportunities. In addition, this age range matched data collected by the Annual Disability Statistics Compendium (2015) used within this document. Also, the following participants were excluded in this survey: current/former O&M instructors, guide dog users, and those with severe additional disabilities (i.e., hearing, mental, or physical impairments) which hinder independent travel.

This survey was designed to be self-reporting, which was consistent with the majority of available studies (O’Donnell, 1988). However, some participants needed to have access to a reader and scribe for assistance in filling out the survey online because they did not have access
or the skills necessary to do so independently. Such accommodations were noted at the end of section three of the survey. It was hoped that participants were honorable when filling out the survey in that they matched the criteria as stated at the beginning of the survey instrument. One way to hopefully ensure that participants were, in fact, honest in meeting the criteria was through the option to submit their names and addresses into a drawing of possibly winning one of eight Visa gift cards. Placing one’s name into the hat when not actually meeting the criteria may cause some people who were not honest to feel guilty and therefore, not hit the submit button as the final component of the survey.

**Data Analysis Procedures**

The goal of O&M instructors is not only to assist consumers in gaining the skills necessary to travel (i.e., walk) independently from one point to another; it is also to prepare them to travel safely to desired locations (Aditya, 2004). A paired t-test, data analysis will reveal a consumer comparison by dividing participants into two groups: (a) SL: Group One and (b) SDCT: Group Two. In SL, O&M training focuses on near proximity to distant; from home to business and/or urban environments which, as the distance increases, require more advanced O&M skills and knowledge (Aditya, 2004). On the other hand, in SDCT, O&M destinations are determined by purposeful movements building attention, perception, intention, memory, and consciousness (Baldwin, 2016). Self-confidence was measured through consumers’ reporting their independent distances and frequencies of travel which displayed their O&M proficiency.

Because the electronic survey via Qualtrics was quantitative, using mostly a Likert scale, it was objective as it calculated relationships among variables through deductive reasoning and statistical methods to establish reliability and validity (Gammon, n.d.; Noble & Smith, 2015). Since observations by investigators can be consciously or unconsciously subjective with a major
challenge being instrumentation bias (Allen, n.d.; Chenail, 2011; Trochim, 2001), it was a critical component of this study that the answers to each research question was provided without any bias or conflicts of interest from the investigator. This quantitative, Likert scale, electronic survey removed such bias through a “numeric description of trends, attitudes, or opinions” (Creswell, 2014, p. 155) of consumers which can clearly demonstrate the existence of a relationship between SL and SDCT.

 Limitations and Delimitations of the Research Design

Limitations

The main limitation of such a study was in locating participants who received instruction through the SDCT curriculum equal to those who received instruction via the SL curriculum considering the overwhelming number of instructors and rehabilitation agencies using the SL curriculum. At the time of this writing, only seventy-five SDCT instructors were located throughout the United States (NBPCB, 2018). It is unknown how many of them were instructing O&M full-time or part-time, or how many were unemployed, retired, or current college professors. Scarcity of SDCT instructors has caused consumers wishing structured discovery instruction to temporarily relocate to one of six nationwide approved SDCT training centers: (a) Blindness: Learning In New Dimensions, Incorporated (BLIND, Inc) in Minnesota; (b) Colorado Center for the Blind (CCB); (c) Louisiana Center for the Blind (LCB); (d) Ho`opono Services for the Blind Orientation Center in Hawaii; (e) Nebraska Commission for the Blind and Visually Impaired, Orientation Center; and (f) New Mexico Commission for the Blind, Orientation Center (NBPCB, 2018).

Other limitations of this study include the survey only being administered electronically whereby it was limited to consumers with the necessary skills to access the internet (Crudden et
al., 2017) or those who had an available reader/scribe. The ongoing debate within the professional field of O&M instructors (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018) could have been a limitation whereby traditional O&M instructors feel obligated and devoted to instilling the SL curriculum to consumers (Glasser, 1998) securing their locus of control, while nontraditional O&M instructors feel obligated and devoted to teaching SDCT where the locus of control is placed on consumers. This debate, as with learning theorists, stems from the instructors’ bias towards the two educational O&M training curriculums: the guided approach - Sequential Learning (SL) or the discovery approach - Structured Discovery Cane Travel (SDCT) (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Mettler, 1995; Omvig, 2002). Bias was exposed in Aditya’s (2004) study when proponents of the conventional approach aired adverse reactions on the internet regarding the O&M certification comparison study. It was feared that negative comments could limit the already small consumer pool for this study because some O&M instructors may not willingly forward knowledge of this study to possible consumers who may want to participate.

Some readers may consider I may be an additional limitation because I am an NOMC and have published several articles within the field of O&M mainly focused on children or parent education (Chamberlain, 2005, 2013, 2015, 2017, 2018; Chamberlain & Mackenstadt, 2018). I was trained by Richard Mettler (1995) at the Nebraska Commission for the Blind where I learned SDCT. Thus, some traditional O&M professionals might consider me to be biased in favoring the SDCT curriculum and therefore might think I am seeking data to support this method of instruction rather than my desire to settle the ongoing debate among O&M instructors (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995;
Omvig, 2002; Pogrund & Griffin-Shirley, 2018). Due to this belief, some SL instructors might not forward knowledge of this study to possible consumers who may want to participate, whereas some SDCT instructors might work diligently to seek consumers who meet the participant guidelines.

**Delimitations**

One possible delimitation was the use of snowball sampling by soliciting volunteers to participate from throughout the United States rather than focusing on representing consumers and/or O&M instructors from one particular region. This was an active attempt to avoid a biased sample (Harris, 2014) whereby participants represented a random sample of consumers within the population pool (Creswell, 2014). Consumers had an equal probability of participating (Creswell, 2014) through this snowball sample due to the PI reaching out to over 1,150 targets throughout the United States. These targets consisted of: consumer groups, private and state VR training centers for the blind, Visually Impaired Service Teams through the VA, and social media sites.

A second delimitation was the identification of the targeted population to take the survey. When possible participants selected that they met the guidelines to participate in the survey, they moved forward, whereas those who selected that they did not meet the guidelines were promptly taken to the end of the survey. These guidelines were established to ensure the participants were (a) blind or visually impaired (self-reported); (b) completed *formal Orientation and Mobility (O&M) training in or after 1999 (* = Formal training consisted of instruction received in a state or private rehabilitation training center designed for individuals with visual impairments); (c) did not receive any formal O&M training prior to attending a private or state rehabilitation training center; (d) were between the ages of 20 and 70 (including the age of 20 and the age of 70); (e)
did not use a long, white cane for mobility prior to the age of 20; (f) were not current or former O&M instructors; and (g) were not guide dog users. In addition, these guidelines were necessary to ensure the comparison of the two O&M training curriculums were represented to measure what distance and frequency consumers travel independently post-training. The final delimitation was the use of the Likert Scale in the study instrument where response “items are assigned interval-level scale values, and the responses are gathered using an interval level response format” (Trochim, 2001, p. 348) which could be measured through a paired sample t-test.

**Internal and External Validity**

Because the survey was quantitative, it was unbiased since internal and external validity can be guaranteed when data is calculated through a statistical method rather than subjective inductive reasoning (Blasch et al., 1997; Noble & Smith, 2015). Because of their long history of formal existence, Group One was consumers who received O&M training with the SL curriculum while Group Two was those who received O&M training with the SDCT curriculum. Qualtrics was used in addition to SPSS to eliminate any extraneous variables such as investigator bias, conflicts of interest, or external validity. Since observations by investigators can be unconsciously subjective (Bradford, 2017), this electronic survey removed such bias; instead, it focused on the data at hand. In addition, the Likert scales clearly drew conclusions demonstrating a relationship between SL and SDCT via a ratio measurement.

To help with securing external validity, NOMC participants needed to be targeted prior to SL participants due to the remarkably smaller selection pool and the difficulty locating their whereabouts post-training. Therefore, announcements of the study were directed towards NOMC targets before SL targets. Once the study announcements were distributed to all targets
throughout the United States, the duration of accepting surveys needed to be short to possibly avoid external validity/bias from the ongoing dispute among O&M instructors (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018) which could have interfered with possible consumers wishing to participate.

**Expected Findings**

Expected results regarding comparison research of the two Orientation and Mobility (O&M) training curriculum, (a) Sequential Learning (SL) which begins with sighted guide instruction and (b) Structured Discovery Cane Travel (SDCT) which begins with cane fundamentals, are that the distance and frequency consumers travel independently away from their home base will be higher in SDCT than SL. The basis for this hypothesis is due to data collected from Annual Disability Statistics Compendium (2015), Activity After Training study (Vaughan, 1993), along with the literature review discussed in Chapter 2 which focused on participants who were blind or visually impaired known as consumers. Results of this comparison study measuring two quantitative variables within the same protected population may determine a covariation leading to the end of the debate among O&M professionals (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018) whereby this study will demonstrate lower levels of self-confidence among consumers who received the SL curriculum than the SDCT curriculum. Overall, this study will provide information sharing through literature and confirm the PI’s theory, leading to positive changes nationwide in O&M rehabilitation for consumers.
Ethical Issues and Protections in the Study

First, it would be unethical of me not to inform readers that as the PI, I am knowledgeable within the visually impaired field not only as an O&M instructor but also as a consumer. Therefore, I feel compelled to note that I have a Bachelor’s Degree in Elementary Education, two Master’s Degrees (Special Education, Teacher of Students with Visual Impairments (TVI); Educational Psychology with an emphasis on Orientation and Mobility), and I have published several articles mainly focused on teaching O&M to children (Chamberlain, 2005, 2013, 2015, 2017, 2018; Chamberlain & Mackenstadt, 2018). Also, I co-instructed a master’s level methods course in O&M that focused on both SL and SDCT curriculums, the first known occurrence of such a course in this country. Therefore, my extensive education and experience needs to be considered an asset to this study.

Participants represented a random sample of consumers, whereby, according to Creswell (2014), random sampling is when individuals within the population (consumer pool) have an equal probability of participating. Although according to Harris (2014), there is not a quick procedure to determine if a sample is useful and he adds several journals articles “still make important contributions to the literature” with less than 100 participants (p. 65). This study collected anonymous quantitative data to be examined to determine which curriculum of O&M instruction, SL or SDCT, yielded the highest level of self-confidence for consumers within the United States. Quantitative research tends to “be perceived as more objective or scientific” (Harris, 2014, p. 20).

To be in the study, participants anonymously volunteered to complete an online survey and answered questions about their O&M experience post-training. Online surveys offer access to reach populations which are hard-to-access (McInory, 2016). Web-based surveys have
become more prevalent with the advantage of instant real-time recording of data submitted which permits closer monitoring (McInory, 2016). This also documents when any participants discontinue answering the questions, which is their option to do so.

No personal identifying information was requested in this survey unless the participant wanted to submit their name into a drawing for one of eight $25 VISA gift card and this information was destroyed directly afterward. All data was collected anonymously and held privately within the online survey instrument. In the options section of this survey, any self-identifying comments were not included in any publication or report and data will be destroyed three years after the study ends. There was no risk to participants in this study other than the everyday risk of being on a computer while taking the survey.

**Institutional Review Board (IRB) Approval**

Concordia University-Portland Institutional Review Board (IRB) approved this study on November 19, 2018. This approval was based on the appropriate risk/benefit ration whereby any risks were minimized due to the project design. Furthermore, participants could elect to discontinue the survey at any time if they wanted to do so.

**Summary**

This chapter included a description of the quantitative research approach and the comparison design that was used for this study. In addition, this chapter included a description of the purpose of the study, research questions, hypothesis research design, target population, and sample methods. A discussion of the validation process, which included a pilot study and review by three experts in the field of O&M and SDCT curriculum was also addressed in this chapter. The data collection and analysis procedures, as well as the limitations, delimitations,
internal and external validity related to the study, were also discussed. Finally, the expected findings, ethical issues were disclosed.

Chapter 4 reviews the data analysis and results. It provides a description of the sample, the method used to call for volunteers, the states and agencies represented in the survey, and the results of the survey. In detail, Chapter 4 reveals information about the instructors, consumers knowledge of O&M certifications, their personal preferences regarding sighted guide use, frequency, and distances traveled. This information, along with future O&M needs were used to answer the research question.

Chapter 5 begins with a summary and discussion of the study results followed by how the results relate to literature. This chapter also discusses the limitations of the study, implications of the results for practice and recommendations for further research. In addition, the conceptual framework is revisited, reflection about this study and the implications for an O&M curriculum to meet the future needs of consumers.
Chapter 4: Data Analysis and Results

Self-confidence regarding O&M training was measured through a comparison survey of consumers who received training from instructors who used either the SL curriculum or the SDCT curriculum. This survey was conducted to determine which curriculum yielded the highest level of self-confidence to offer consumers clear, researched-based choices. By participating in a study that compared the distance and frequency consumers independently traveled post-O&M training, consumers had the power and opportunity to prove that their level of self-confidence dictated the best curriculum for instructing O&M. In addition, this study questioned the SL curriculum which places the instruction of sighted guide before introduction to the long, white cane and considers sighted guide a prerequisite to cane instruction even though, according to Pogrund and Rosen (1989) and Fazzi and Barlow (2017), sighted guide skills are not prerequisites to learning cane travel. Rather, Fazzi and Barlow (2017) “support the earliest possible introduction of the long cane” for purposeful movement (p. xvii).

Description of the Sample

Individuals who were consumers from throughout the United States participated in this study. They were (a) blind or visually impaired (self-reported); (b) had completed *formal O&M training in or after 1999 (* Formal training consists of instruction received in a state or private rehabilitation training center designed for individuals with visual impairments.); (c) did not receive any formal O&M training prior to attending a private or state rehabilitation training center; (d) were between the ages of 20 and 70 (including the age of 20 and the age of 70); (e) did not use a long, white cane for mobility prior to the age of 20; (f) were not current or former O&M instructors; and (g) were not guide dog users. Participants who had severe additional disabilities (hearing, mental or physical impairments) which hindered independent travel were
excluded from the survey whereas individuals who had additional minor disabilities and traveled independently were encouraged to take the survey.

**Call for Volunteers**

A call for volunteers for both the pilot study as well as the actual study was through snowball sampling. Many attempts were made to outreach to participants beginning with electronically contacting the two professional O&M certifying organizations, (a) the National Blindness Professional Certification Board (NBPCB), followed by (b) the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP). They were requested to forward the survey to their O&M instructors with the invitation to pass it to their former consumers. Second, the presidents or representatives of the two nation-wide consumer organizations, National Federation of the Blind (NFB) and the American Council of the Blind (ACB), were contacted with the request to electronically post the survey in addition to forwarding the survey to their state chapter presidents to distribute to their members. Third, the same request was sent to private training centers and State Rehabilitation Agencies serving individuals who are blind or visually impaired. Fourth, the National Research and Training Center (NRTC), a registry of volunteer consumers willing to participate in research, was contacted requesting their participation with this research (Crudden et al., 2017). Fifth, the Visually Impaired Service Team (VIST) coordinators of the VA were contacted. Finally, requests for participants via social networking sites such as Facebook and Twitter were posted. Furthermore, invitations were extended to everyone to invite or forward the survey link to friends and relatives with visual impairments, and to professionals working with individuals with visual impairments.
Participants, who willingly responded to a call for volunteers, were random. This snowball sampling was successful in previous studies focused on consumers (Williams et al., 2013). Thus, the overall number of the participants depended on (a) a wide variety of outreach methods and (b) on consumers’ willingness to complete the survey. Therefore, participants were random, depending on their willingness to respond to the survey. Monitoring of submitted surveys during data collection helped to enable an equal number of SDCT to SL consumers and when those numbers were equal, survey collection terminated. After an extensive nationwide search, a total of 40 participants were evaluated for this study. Twenty participants were placed into two groups: (a) Sequential Learning (SL) who were trained by Certified Orientation and Mobility Specialists (COMS) and (b) Structured Discovery Cane Travel (SDCT) who were trained by National Orientation and Mobility Certified (NOMC) Instructors. Twenty-five of the participants were female, and 15 were male (SL= 13 females and 7 males; SDCT = 12 females and 8 males) (Figure 2). A vast spread in the age of the participants is displayed in Table 6.

![Figure 2. Female and male participants.](image)
Table 6

Ages of the Participants

<table>
<thead>
<tr>
<th>Age Categories</th>
<th>20–29</th>
<th>30–39</th>
<th>40–49</th>
<th>50–59</th>
<th>60–70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Participants</td>
<td>11</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>

Twenty-five of the participants reported themselves to be Caucasian/White, 7 were native Hawaiian, 5 Asian, 2 Hispanic, and 1 Black/African American. None of the participants were veterans. Twenty-three of the participants described themselves as blind, and the other 17 considered themselves as legally blind (Figure 3).

Figure 3. Blind and legally blind participants.
A map of the United States (Figure 4) displays how participants represented a wide range throughout America. Thus, this study did not symbolize a single region or highlight particular O&M instructors. Survey participants represented at least 16 states which include:

- Arkansas
- California
- Colorado
- Florida
- Georgia
- Hawaii
- Idaho
- Indiana
- Louisiana
- Mississippi
- Missouri
- Montana
- Nebraska
- New Jersey
- New York
- Plus, three unknown states

*Figure 4. United States Map (Printable United States Map Collection, 2019)*
The following 22 rehabilitation agencies were represented in this survey:

- Addie McBryde Center for the Blind
- Alphapoint
- Arkansas Vocational Rehab Services
- Blindness Support Services, Riverside
- Bosma Industry for the Blind
- California Commission for the Blind and Visually Impaired
- Center for the Visually Impaired, Georgia
- Colorado Center for the Blind
- Ho'opono Services for the Blind, New Visions Program
- Idaho Commission for the Blind and Visually Impaired
- Lighthouse for Visually Impaired and Blind, Florida
- Louisiana Center for the Blind
- Missouri Rehabilitation Services for the Blind
- Nebraska Training Center for the Blind
- New Jersey Commission for the Blind and Visually Impaired
- New York State Commission for the Blind
- Orientation Center for the Blind, California
- Rehabilitation Center for the Blind and Visually Impaired, Florida
- State of Montana Visual Services
- Vision Rehab Services, Georgia
- VISIONS, New York City
- Vocational Rehabilitation, Nevada

**Summary of the Results**

This comparison study was conducted mostly using a Likert scale survey of two consumer groups: (a) those who received O&M instruction via the SL curriculum with a COMS and (b) those who received O&M instruction via the SDCT curriculum with NOMC instructors. Consumers who received the SL O&M curriculum were considered Group One because of their long history of formal existence in the United States while the consumers who received the
SDCT curriculum were given the label Group Two. It was the goal of this study to meet an equal quota sample of the population, as close as possible, in the number of consumers who received the SL curriculum compared to those who received the SDCT curriculum. However, the actual amount was not measured by meeting a targeted quota of participants; instead the goal was the best possible balance between the two participant categories, SL and SDCT.

**Knowledge of O&M Certifications**

Participants were asked if they were informed of two types of O&M certifications at the time of their training whereby “certification of an instructor tells the consumer that he has had the necessary academic preparation” (Wiener, 1981, p. 340). Only 23% \((n = 9)\) of the participants said they were informed with 43% \((n = 17)\) who said they were not informed and 35% \((n = 14)\) stated they did not recall (Figure 5). They were also asked which O&M certification their instructor held, and they were given the following options: (a) Certified Orientation and Mobility Specialists (COMS); (b) National Orientation and Mobility Certified (NOMC); (c) Agency Trained; and (d) Unknown, I don’t recall, or I don’t feel comfortable giving that information. Sequential Learning responses were as follows: COMS, 50% \((n = 10)\); NOMC, 5% \((n = 1)\); Agency Trained, 5% \((n = 1)\); and Unknown, 40% \((n = 8)\). Structured Discovery Cane Travel responses were as follows: COMS, 5% \((n = 1)\); NOMC, 60% \((n = 12)\); Agency Trained, 5% \((n = 1)\); and Unknown, 30% \((n = 6)\). Thus, half of the SL participants knew their instructors were COMS with 60% of the SDCT participant knew their instructor were NOMC (Figure 6).
Assigning participants into either the Group One or Group Two was simple. However, in some cases, further investigation (i.e., information revealed in other questions and enquiring emails to agencies) was necessary. Participants were divided into two curriculum categories with 20 in each group. Sequential Learning was considered Group One and given the number 1, simply because of their longer existence in the United States. Structured Discovery Cane Travel participants were considered Group Two and were assigned the number 2 (Table 7).

*Figure 5.* Knew certifications before training.
Figure 6. The O&M certification my instructor had was (COMS/NOMC)

Instructors

History has proven an overwhelming majority of instructors were sighted due to the early requirement that O&M instructors must have vision (Wainapel, 1989; Vaughan, 1993; Blasch et al., 1997). The same statistics were discovered in this study with 90% ($n = 18$) of the SL COMS instructors being identified as sighted. On the other hand, the extreme opposite was noted with 80% ($n = 16$) of the SDCT NOMC instructors identified as blind or visually impaired (Figure 7). One SDCT participant commented, “The blind role models helped me to build my confidence and skills to be independent.”
Sleep-Shades

Participants were asked if their sighted or visually impaired O&M instructor wore sleep-shades during the lesson to prove that the task could be done without vision. Of the 31 sighted or visually impaired instructors, 13 SL and 4 SDCT did not wear sleep-shades while 5 SL and 9 SDCT instructors did. This excluded 9 (23%) instructors (2/SL and 7/SDCT) who were listed as totally blind (Figure 8, Table 8).

Table 7

Group Assignments

<table>
<thead>
<tr>
<th></th>
<th>Group One</th>
<th>Group Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum received</td>
<td>Sequential Learning</td>
<td>Structured Discovery Cane</td>
</tr>
<tr>
<td>Orientation and Mobility</td>
<td>Certified Orientation and Mobility Specialists</td>
<td>National Orientation and Mobility Certified</td>
</tr>
<tr>
<td>Assigned number</td>
<td>#1</td>
<td>#2</td>
</tr>
</tbody>
</table>

Figure 7. Instructor was (sighted/blind).
Table 8

Sleep-shade comparison

<table>
<thead>
<tr>
<th></th>
<th>SL Instructors</th>
<th>SDCT Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Sighted Instructors ($n = 31$)</td>
<td>18 (90%)</td>
<td>13 (65%)</td>
</tr>
<tr>
<td>Did not wear sleep-shades during lessons</td>
<td>13 (72%)</td>
<td>4 (31%)</td>
</tr>
<tr>
<td>Wore sleep-shades during lessons</td>
<td>5 (28%)</td>
<td>9 (69%)</td>
</tr>
</tbody>
</table>

![Figure 8](image.png)

Figure 8. Sighted O&M instructor wore sleep-shades.

In addition, there was an overwhelming (90%) affirmation that SL participants were not required to wear sleep-shades during O&M training while SDCT participants (95%) were required to be occluded during O&M training’s operating hours and the latter were not permitted to remove their sleep-shades between classes except during lunch or other structured breaks.
Although participants who received the SL curriculum were not always required to wear sleep-shades, they reported the following off-campus activities:

- Bowling
- Kayaking
- Metro link train to Union Station and downtown Los Angeles.
- Restaurants

Participants who received the SDCT curriculum were required to wear sleep shades during group field trips/outings which included locations such as:

- Ball games
- Barbecue
- Beach
- Bowling alleys
- Bus travel
- Camping/Parks
- Cane walks
- Canoeing
- Carnival
- Christmas shopping
- Courthouse
- Dole Plantation Maze
- Downhill skiing
- Firing range
- Fishing
- Rock climbing at an indoor gym
- Starbucks and other nearby activities
- Talking book library
- Tandem bike riding
- Hiking trail
- Human Foosball
- Ice hockey
- Independent walking trips to nearby towns
- Kayaking
- Malls
- Mardi Gras
- Memorial Service
- Movie theatres
- Museums
- National NFB Convention
- Nature centers
- NFB and ACB Meetings
- Out-of-town trips
Sighted Guide

Questions were asked regarding the knowledge of sighted guide techniques prior to learning the long, white cane (Figure 10) and perceived notion as to the focus of the first lesson; that is, sighted guide versus the long white cane (Figure 11). Participants displayed mixed results regarding their knowledge of sighted guide prior to their first formal lesson (yes = 11 SL, 3 SDCT; No = 9 SL, 17 SDCT). Twenty-five percent of SL participants stated their first formal lesson was sighted guide while 100% of the SDCT participants indicated their first lesson was with the long, white cane. Analysis of these questions suggests further investigation is necessary to determine whether consumers consider sighted guide activities as formal lessons in O&M or if ‘formal’ O&M instruction does not occur until the lesson focuses on the long, white cane. The confusion among participants may be because SL instructors often guide consumers as a convenient method of getting to and from various lessons (Fazzi & Barlow, 2017).

Personal Preference Regarding Sighted Guide

When participants were asked if they use a sighted guide whenever they leave their home or apartment, 15% \((n = 3)\) SL participants said they always use a sighted guide compared to zero of the SDCT participants post-instruction. As discussed earlier, consumers who are successful problem solvers are capable of handling unpredictable situations, and it is not necessary for them
to depend on others whenever faced with new circumstances (Perla & O’Donnell, 2004).

However, as discussed in previous chapters, at any time, consumers have the option to travel with a sighted guide if they wish to do so.

Results of this study show those who said they sometimes use a sighted guide were 55% \((n = 11)\) of the SL and 40% \((n = 8)\) of the SDCT. “Sometimes when traveling with friends and family I do not necessarily take a cane,” commented one SL participant. Those who never use a sighted guide when they leave their home environment were 30% of SL and 60% of SDCT participants (Figure 12).

![Figure 9. Rehabilitation agency required sleep-shades during training.](image)

**The Cane**

All SDCT participants considered the cane as a symbol of independence compared to 75% \((n = 15)\) of the SL participants. The other 25% \((n = 5)\) of the SL participants disagreed entirely. One hundred percent of the SDCT and all but two SL participants agreed the cane was a tool for independence and the same two stated they did not like their cane.
**Distance Travel**

Distance was documented in this study when participants were asked if they travel independently to a variety of locations including outside their city limits. Most impressive was 75% \((n = 15)\) of the SDCT participants answered *Always* while 25% \((n = 5)\) answered *Sometimes*. One SDCT participant stated, “I used to be afraid to travel without my mother but now she has even commented on my travel skills, and she is proud of seeing me go places independently.” Of the SL participants, only 30% \((n = 6)\) answered *Always*; 55% \((n = 11)\), *Sometimes*; and 15% \((n = 3)\), *Never*. In addition, traveling independently to visit friends or relatives revealed 95% \((n = 19)\) SDCT participants state they *Always* visit friends/relatives independently compared to 50% \((n = 10)\) SL participants. The final 2 SL participants answered *Never* to visiting friends/relatives independently. (See Figures 13 and 14).

**Frequency Traveled**

Frequency was measured based on two questions focused on being able to travel whenever they wanted independently. Scores from these two questions were added together and placed into three categories to create a Frequency Score (FS) whereby the higher the score, the higher the self-confidence levels of the participants. The scores revealed those who received the SDCT curriculum had the highest FS of 90% \((n = 18)\) compared to 75% \((n = 15)\) of those who received the SL curriculum. One SDCT participant commented on her O&M training, “... greatly increased my self-confidence. I will be forever grateful!” Frequency Scores in the middle were 10% \((n = 2)\) of the SDCT and 15% \((n = 3)\) of the SL participants, with 10% \((n = 2)\) SL and zero SDCT participants receiving the lowest FS (Table 9).
Table 9

*Frequency Scores*

<table>
<thead>
<tr>
<th></th>
<th>Sequential Learning</th>
<th>Structure Discovery Cane Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>75% ((n = 15))</td>
<td>90% ((n = 18))</td>
</tr>
<tr>
<td>Middle</td>
<td>15% ((n = 3))</td>
<td>10% ((n = 2))</td>
</tr>
<tr>
<td>Low</td>
<td>10% ((n = 2))</td>
<td>Zero</td>
</tr>
</tbody>
</table>

![Bar chart showing frequency scores](chart.png)

**Figure 10.** Knew sighted guide before training.

**Future Training**

Measurement of confidence levels was also reflected through participants’ reporting of potential future O&M training needs which encouraged consumers to reflect on their training. As discussed, successful problem solvers handle unpredictable situations; therefore, additional O&M instruction is not necessary (Perla & O’Donnell, 2004). Of the participants, 50% \((n = 10)\) of SL participants reported they would need additional training, and one individual was unsure. An SL participant commented, “Training could have been much better” while another said, “My training
was excellent. I wish I received it sooner.” A third SL participant added, “Learning how to evaluate situations and specific techniques for different situations has allowed me to travel independently into new environments successfully.”

Of the SDCT participants, only 70% \((n = 14)\) said they would not need additional training. “I think using structured discovery as a teaching strategy makes it so students realize that they can learn on their own and teach themselves during and after training. It really helps to instill that confidence for the future.” commented one SDCT participant. Another one wrote, “After completing my O&M instruction I feel more confident when going out and about.” Two others remarked, “O&M training changed my life” and “I loved my time at the training center. It changed my life for the better.” A fifth participant added, “I believe the training I received was life-changing not just the cane travel but all the other skills I learned at my training center.”

Figure 11. Focus of the first formal lesson
Figure 12. Personal preference regarding sighted guide post-training

Figure 13. Travel beyond city limits.
Figure 14. Travel to visit friends/family.

Consumer Organizations

The largest consumer group represented in this study was the National Federation of the Blind (NFB) with 90% of the SDCT and 50% of the SL participants. Thirty percent of the SL participants were members of the American Council of the Blind. Four SL participants belonged to both groups, and some participants did not answer this elective question.

Additional Consumer Comments

Participants had the opportunity to provide additional comments regarding their O&M training which they did not have the chance to express within the survey. One SL participant mentioned the critical issue regarding “a dreadful shortage of skilled O&M instructors” which was noted by Pogrund and Griffin-Shirley (2018). A breakdown of participants’ comments are listed below:
SL Participants:

▪ “Sometimes when traveling with friends and family, I do not necessarily take a cane.”
▪ “Training could have been much better... training is not very extensive. It lasts about 4 hours max and then it is over.”
▪ “I would love to see the result of your research!”
▪ “My training was excellent. I wish I received it sooner.”
▪ “There is a dreadful shortage of skilled O&M instructors.”
▪ “Learning how to evaluate situations and specific techniques for different situations has allowed me to travel independently into new environments successfully.”

SDCT Participants:

▪ “I think using structured discovery as a teaching strategy, makes it so students realize that they can learn on their own and teach themselves during and after training. It really helps to instill that confidence for the future.”
▪ “After completing my O&M instruction, I feel more confident when going out and about. I used to be afraid to travel without my mother but now she has even commented on my travel skills, and she is proud of seeing me go places independently.”
▪ “My O&M training at ___ greatly increased my self-confidence. I will be forever grateful!”
▪ “I enjoyed completing this survey. It really helped me reflect on my training at ___."
▪ “O&M training changed my life.”
▪ “I’ve been waiting for someone to ask these questions!!!”
▪ “I believe the training I received was life-changing not just the cane travel but all the other skills I learned at my training center. The blind role models helped me to build my confidence and skills to be independent.”
“I loved my time at the training center. It changed my life for the better.”

Detailed Analysis

Based on the data collected, an analysis of the two types of O&M curriculums was conducted to determine if there was a relationship. This relationship was evaluated by a survey comparison between consumers who received the Sequential Learning (SL) O&M curriculum with a Certified Orientation and Mobility Specialist (COMS) instructor and consumers who received the Structured Discovery Cane Travel (SDCT) O&M curriculum with a National Orientation and Mobility Certified (NOMC) instructor. The correlation coefficient, $r = 19$, computed revealed a statistically small difference between the two curriculums of O&M instruction, $t(2.7) = .004$, $p = Eta^2 = .22$, $\eta^2 = .2$. The strength of the relationship between the two methods used, as assessed by $\eta^2$, was small with the participants accounting for 22% of the variance. There was a 95% confidence interval for the differences in means range from 8.04 to 36.05. Based on the participants’ responses, SDCT scores ($M = 149.35$, $SD = 14.4$) were higher than SL scores ($M = 127.3$, $SD = 26.35$) (see Appendix B).

Summary

This study used mostly a Likert-type survey to compare two O&M training curriculums, that is (a) Sequential Learning (SL) and (b) Structured Discovery Cane Travel (SDCT), to discover the difference between the two curriculums by evaluating the distance and frequency consumers travel independently away from their home base. It was the hypotheses of the PI that a relationship between when a sighted guide is presented to consumers during training would reflect in their independent travel post-training. Forty participants were divided into two categories with twenty in each group: (a) Sequential Learning and (b) Structured Discovery Cane Travel. Only 23% confirmed they were informed of two types of O&M certifications at the time of their training. In SL, 90% of the instructors were sighted compared to SDCT where 85% of the
instructors were blind or visually impaired. There was an overwhelming (90%) affirmation that SL participants were not required to wear sleep-shades during training while SDCT participants (95%) were required to be occluded during formal O&M training.

Slightly over 50% of SL participants had some knowledge of sighted guide techniques prior to formal training, yet only 25% of them stated their first formal training focused on sighted guide. All SDCT participants stated their first formal training focused on the long, white cane, despite 15% of them saying they had some knowledge of sighted guide beforehand. The confusion among participants may be because “in the traditional training sequence, guide techniques may be introduced early on as a convenient means for getting to various lesson locations or as a means to refine guide techniques already in practice” (Fazzi & Barlow, 2017, p. 40). Because of personal preference post-training, 15% of the SL participants said they always use a sighted guide compared to zero of the SDCT participants. Those who never use a sighted guide whenever they leave their home environment were 60% of SDCT and 30% of SL participants. One hundred percent of the SDCT participants considered the cane as a symbol of independence compared to 75% of the SL participants.

Distance traveled outside city limits, and traveling to visit relatives/friends, was used to help establish confidence levels. Of the SDCT participants, 75% said they always and 25% said they sometimes travel outside city limits and 95% said they always travel independently to visit friends/relatives. Thirty percent of the SL participants said they always, 55% sometimes, and 15% never travel outside the city limits, and only half stated they travel independently to visit friends/relatives. Using a Frequency Score (FS), SDCT scored higher than SL (90% to 75%). In addition, confidence was measured by the need for additional training, and 50% of the SL participants reported they would need additional training compared to 30% of SDCT participants. One SL participant was unsure
Based on data collected for this study, a relationship between the SL O&M curriculum with COMS instructors and the SDCT O&M curriculum with NOMC instructors was confirmed. Although the strength of the relationship between the two methods used was small, the hypotheses that SDCT consumers have higher confidence levels than SL consumers was proven to be true with this study. Therefore, this study proved the instruction of the long, white cane needs to be introduced to consumers prior to instruction of sighted guide to achieve the highest self-confidence level in independent Orientation and Mobility.
Chapter 5: Discussion and Conclusion

The Sequential Learning (SL) curriculum of Orientation and Mobility (O&M) has monopolized rehabilitation for consumers since it was designed to assist blinded WWII veterans in the 1940s. That is until Structured Discovery Cane Travel (SDCT) made its official debut in 1997. Traditional O&M curriculum evolved through a health-recovery medical model, without any philosophical basis to prove its efficiency or rehabilitation knowledge of how to use cane techniques (Baldwin, 2016; Koestler, 2004; Welsh, 2005), for consumers who were military trained prior to becoming adventitiously visually impaired (Geruschat & De L’Aune, 1989).

Two O&M curriculums used in rehabilitation for the blind and visually impaired across the United States are delivered through Certified Orientation, and Mobility Specialists (COMS) and National Orientation and Mobility Certified (NOMC) trained instructors. According to Wiles (2009), “any curriculum always reflect the values of those who created it” (p. 14). Wiles states curriculum developers use research to help define goals and some of the Valued Learning Outcomes which affect curriculum design include: (a) self-esteem; (b) capability for continuous learning; (c) being a responsible member of society; (d) mental and physical health; (e) informed participation in the economic world; (f) use of accumulated knowledge to understand the world; and (g) coping with change (pp. 15–16). Most importantly, Wiles (2009) adds, is that the curriculum planning and program needs to be honest, open, and completely understood by the community (consumers and instructors).

Consumers receive SL training through a COMS instructor while consumers receive SDCT training through a NOMC instructor. However, according to Fazzi and Barlow (2017), due to regional differences, evidence-based practices, and university preparations, there are a variety of cane techniques and philosophies among O&M professionals. It has only been about 20 years since the existence of SDCT and “the ultimate test of any new method is clearly the extent to
which it gains acceptance among a group of people, but there are many routes towards ultimate acceptance and rejection” (Leonard, 1968, p. 3). Even though research which compares O&M performance can impact and enhance the delivery of O&M instruction (Lumadi et al., 2012) between the two curriculums, such research has been scarce (Zijlstra et al., 2012) or nonexistent (Fazzi & Barlow, 2017).

Sighted guide instruction compared to when the long, white cane is introduced to consumers accounts for the significant fundamental difference between SL and SDCT. “Some traditional sequences introduce the use of the long cane after working on guide techniques and upper- and lower-body protective techniques” as seen in the SL approach (Fazzi & Barlow, 2017, p. 95; COMS Handbook, 2018). Although “tap tap tap . . . [is] the sound of independence”, many consumers depend on sighted guides to travel from one location to another (Winter, 2015, para. 1). Nontraditional O&M instructors begin with the use of the long, white cane to “teach independent travel as soon as possible with the technique that will be used most often” as seen in the SDCT approach (Aditya, 2004; Fazzi & Barlow, 2017, p. 95). Higher self-confidence enhances independent action and motivation (Bénabou & Tirole, 2002; Williams et al., 2013) and such independent action displays perceived abilities and self-confidence (Schreiber & Moss, 2002).

**Summary of the Results**

This study compared SL and SDCT O&M curriculums to evaluate distance and frequency consumers independently travel post-training as a method to measure self-confidence. The hypotheses of when sighted guide versus the long, white cane was presented to consumers during the very beginning of training would reflect in their independent travel post-training. There were 40 participants, 20 SL, and 20 SDCT, in this study who were between the age of 20 and 70. In addition, these participants received O&M instruction within the United States from either a
COMS or a NOMC instructor. They were asked if they were informed of two O&M certifications within the United States at the beginning of their training and less than 10 said they were informed of the two available O&M certification options. As shown in history, sighted instructors accounted for 90% of the SL COMS in this study. On the other hand, the extreme opposite was noted with 80% ($n = 16$) of the SDCT NOMC instructors identified as blind or visually impaired (Figure 7).

Despite only 25% of the SL participants who considered sighted guide instruction as their first formal lesson, slightly over 50% of them had prior knowledge of sighted guide techniques before training. On the other hand, 100% of SDCT participants stated the long, white cane was the focus of their first formal lesson with only 15% of them saying they had some knowledge of sighted guide beforehand. Post-O&M training, none of the SDCT participants said they always use sighted guide compared to 15% of the SL participants who always use sighted guide when traveling outside their home environment.

Consumers’ feelings towards their cane is a psychological connection which helps direct independent travel. One hundred percent of the SDCT participants considered the cane as a symbol of independence compared to 75% of the SL participants. In addition, 100% of the SDCT participants considered the cane as a mobility tool compared to 90% of the SL participants. Two SL participants said they did not like their canes. However, according to Kaiser et al. (2018), when consumers do not have a long, white cane present, others may not know the individual has a visual impairment. They add, “these individuals may struggle in some social situations, such as when they need to ask for assistance” (p. 15).

Distance traveled outside city limits was one post-training activity used to calculate self-confidence. In addition, traveling to visit relatives/friends (within means), Frequency Scores, and the need for future O&M instruction were also evaluated to help determine which curriculum
offered higher self-confidence post-instruction. Scores show SDCT participants have higher self-confidence in their independent travel by 32% over SL participants. Table 10 displays the average scores of the study participants.

Table 10

Self-Confidence Level Calculations

<table>
<thead>
<tr>
<th></th>
<th>SL</th>
<th>SDCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Outside City Limits (TOCL):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>15%</td>
<td>0</td>
</tr>
<tr>
<td>Sometimes</td>
<td>55%</td>
<td>25%</td>
</tr>
<tr>
<td>*Always</td>
<td>30%</td>
<td>75%</td>
</tr>
<tr>
<td>Travel independently to visit friends/relatives</td>
<td>50%</td>
<td>95%</td>
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<tr>
<td>Frequency Score</td>
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<td>90%</td>
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<tr>
<td>Self-reported NO need for future O&amp;M training</td>
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<td>70%</td>
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<tr>
<td>Average score (* = score used for TOCL)</td>
<td>51%</td>
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<tr>
<td>Difference</td>
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Discussion of the Results

It has been said that self-confidence, self-esteem, and self-determination are all considered forms of an individual’s sense of competence, adequacy, value, worth, and self-satisfaction in successfully meeting life’s demands (Tuttle & Tuttle, 1996). Therefore, the degree of which individuals feel assured and capable of their actions represent their level of self-confidence (Bearden, Hardesty, & Rose, 2001). Feelings of helplessness and reliance on others regarding self-confidence (Tuttle & Tuttle, 1996) was subsequently revealed through this study.

Data collected from this study confirmed the self-confidence level of consumers who received SL O&M curriculum with COMS was lower than consumers who received SDCT O&M
curriculum with NOMC instructors. Consumers who are overly dependent on sighted guides do not travel as far or as often as those who have higher self-confidence in their independent travel skills and abilities. Such dependency can be cemented via the first lesson in SL where there may be a reinforcement of minimal expectations of consumers (LaGrow & Weessies, 1994) which lowers self-esteem and directs consumers toward the custodial paradigm. Thus, the dependency of a guide remains with the consumer post-instruction, as shown in this research. Therefore, this study suggests instruction of the long, white cane needs to be introduced to consumers as their first formal O&M lesson. By doing so, consumers gain the skills necessary to be independent travelers post-instruction.

**Discussion of the Results in Relation to the Literature**

The literature review discussed in Chapter 2 demonstrated a need to investigate the two O&M curriculums to (a) compare O&M performance among consumers who offer a difference in variables (Long, 1990) and to (b) settle the underlying debate among O&M professionals (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Koestler, 1976; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018). Among many aspects of the debate, it also involved two categories of gatekeepers, that is, university professors and O&M instructors who are invested in either the SL or the SDCT curriculum since many consider their curriculum of instruction superior to the other. According to Glasser’s concept of the quality world (1998), everyone employs strategies to satisfy basic needs, and their ideas or systems of belief govern their behavior. As with learning theorists, this deliberation continues as to which approach offers better results: the guided (SL) or discovery (SDCT) method (Aditya, 2004; Blasch et al., 1997; Mettler, 1995)?

Since the conception of SL, studies measuring O&M curriculum have resulted in unanswered questions about best practices regarding the most effective method of O&M training
for consumers (Long, 1990) and assessment of independent functioning (O’Donnell, 1988). Extensive research or types of measurement which precisely evaluates the feasibility or effectiveness of O&M to determine which curriculum of instruction yields the highest level of self-confidence among consumers has been scarce, unestablished, or concluded with mixed results (Kuyk et al., 2004; Ballemans et al., 2011; Kim et al., 2016). In addition, according to Geruschat and De L’Aune (1989), studies focused on the timing of the introduction to sighted or human guide technique are unknown. Previous studies have used physical components of O&M performance to evaluate self-confidence through the documentation of walking speed and gait (Geruschat & Turano, 2002). Kuyk et al. (2004) used a self-reported survey to evaluate the mobility functions of older veterans post-instruction while Kim et al. (2016) used a performance-based study to evaluate the functional effects of O&M with only six participants. Actually, a variety of methods have been utilized to measure O&M performance which includes physical contact of cane or body, the number of steps, and veering (Dodds, 1988; Lumadi et al., 2012). Aditya (2004) compared the two O&M certifications by reviewing the cane length of the participants while Cmar (2015) investigated campus travel versus community travel for young adults. Additional research focused on two diverse categories or approaches which include (a) frequency counts of key behaviors (e.g., cane or body contacts) and (b) indirect secondary tasks such as (a) cognitive or mental effort and (b) global tasks (movement within the home or community across time) (Long, 1990). Dodds, Carter, & Howarth (1983) found this method of study inconclusive due to consumers’ personal preferences and the fact that a route traveled is never walked precisely the same.

A random performance study by Guerreiro et al. (2017) focused on smartphone-based virtual navigation, revealed participants were unable to retain information by way of a sequential learning model, which supports the need for the development of mental mapping skills to enable independent route retention. With recent technology, virtual environments can be available for
consumers, according to a random assignment experimental study by Lahav, Schloerb, and Srinivasan (2015). Through their qualitative and quantitative research, totally blind or blindfolded participants explored appropriate O&M strategies to achieve and apply practical cognitive mapping skills and demonstrated strong attention to auditory feedback while doing so (Lahav et al., 2015). Although the previous two studies assist with orientation, they did not focus on consumers’ physical mobility skills and hands-on problem-solving in real-life environments whereby consumers can feel the wind current change while walking between two buildings or an open door in the hallway. Sensory acknowledgment skills must be learned hands-on such as the warmth of the sun on one’s body to help with cardinal direction cues.

Through a qualitative narrative study of 30 participants, Williams et al. (2013) discovered sighted guide was the preferred method of navigation in new or unfamiliar indoor locations, but after familiarity with the area, the guide was no longer necessary. This agreed with Bickford (1993), a consumer, who states “as hard as it sometimes is to find help when you need it, sometimes it is harder to get rid of help when you don’t want it anymore” (p. 72). Williams et al. (2013) identified two navigation influences when making individual decisions which include: (a) the situation and (b) the individual’s personality. Although their study did not discuss which O&M training the participants received, the same conclusion may have played a part in this study.

It has been noted throughout this document that O&M studies on consumers’ training are scarce (Zijlstra et al., 2012). However, this data differed considerably because it focused on individual preferences and removed any possible physical disabilities which would emphasize on walking speed or gait. The length of the cane or the visual acuity of the consumer (other than being legally blind) was not of any significance for this study. Rather, it focused on independent travel within the consumers’ own environment post-instruction which supported Long (1990) who stated research needs to be conducted within the consumers’ natural environments. According to
Kaiser et al., (2018) a vital component of O&M is for instruction to take place within natural environments because they offer consumers the ideal settings to develop problem-solving skills, develop functional O&M techniques and promote skill generalization. They add it is essential to prepare consumers to travel at various times of the day and in different weather conditions because authentic travel situations “cannot be adequately replicated in contrived or controlled settings” (p. 5) or through on-line, simulated activities through technology.

Self-confidence can be defined as the degree to which individuals feel assured and capable of their behaviors and decisions (Bearden, Hardey, & Rose, 2001). Through evaluation of consumers’ independent travel habits post-training, this study displayed their self-beliefs of perceived O&M abilities and skills whereby, according to Bénabou and Tirole (2002), higher self-confidence enhances action and motivation. Demonstrating low self-confidence or ignorance regarding self-abilities (Bénabou & Tirole, 2002) can be observed when individuals decrease their distance traveled or stay home rather than visit friends or relatives. This study demonstrated that actions represent personal beliefs, self-confidence and perceived ability which agrees with Schreiber and Moss (2002) because actions mirror one’s self-confidence. In addition, this study supported Bearden et al. (2001) whereby self-confidence was defined and measured (through frequency and distance traveled) as the extent to which consumers felt capable and assured.

American society does not always place equal expectations on citizens with disabilities; therefore “it would not be unusual for a blind individual to grow up with a sense of inadequacy and lack of self-confidence” (Aditya, 2004, p. 70) and neither does society always “see the role of a person who was blind as an independent one” (Pogrund & Griffin-Shirley, 2018, p. 4). Giving individuals with disabilities the opportunity to make a choice is placing that individual on equal status as the giver. Withholding information or not providing citizens with disabilities the option to make informed choices is placing the individual beneath the giver. Data revealed in this survey
confirms consumers are not given informed choice. Choice theory states, “for all practical purposes, we choose everything we do” (Glasser, 1998, p. 3). Yet, consumers are often uninformed of the availability or extent of services and end up pigeonholed (O’Day, 1999). Of the participants, only 25% were informed there were two O&M certifications available to consumers. However, research is currently inadequate regarding exploration of the underlying concerns that consumers have regarding choices in mobility options (Ball & Nicolle, 2015).

The longest lasting O&M curriculum in the United States is SL with the foundation of instruction beginning with a sighted guide (Jacobson, 1993). Research conducted by Welsh and Blasch (1980) indicates consumers can become dependent on others when only traveling via sighted guide. Furthermore, they add consumers often considered their O&M instructor as their personal sighted guide. This instills learned dependency (Omvig, 2002) or learned helplessness, removing one’s independence (Ferguson, 2001) and sense of space.

Curriculum in SDCT begins with the long, white cane which helps the body operate within space by providing tactile information of the terrain. Payne (2002) states it is vital for the brain to have a system to keep track of where the body is, and information about the terrain can be provided by the use of the long, white cane with a metal tip. As stated in Chapter 1, people who are blind have used a stick or type of cane for independent travel since the beginning of human history (First Steps, n.d.; Foundation Fighting Blindness, n.d.; Kim & Wall Emerson, 2012; Roberts, 2009; Sauerburger & Bourquin, 2010; Williams, 1967). According to Lieutenant Holman, the metallic clicking sounds from the tip of his walking stick offered a quick burst of noise (i.e., echolocation) which he used for detection of walls and streets (Roberts, 2009).

The development of cognitive mapping abilities while traveling is a higher mental spatial ability than memorizing a sequence of associated actions or landmarks (Long & Giudice, 2010). This ability is fundamental for successful cane travel (Long & Giudice, 2010) as is evident in the
results of this study. Furthermore, this study indicates consumers are “fully capable of independent movement [with a] long cane that probes space as the blind person moves about” (Baldwin, 2016, p. 42). Although some professionals underestimate consumers’ abilities to retrieve sensory information (Vaughan, 1993) others consider that not obtaining this skill leaves consumers environmentally illiterate (Baldwin, 2016).

Sleep-shade instruction is a significant fundamental difference between SL and SDCT for both the consumers and their instructors. Occluders are any type of blindfold, bandana, sleep-shade or contraption used to restrict or block visual input, and minimal experience with them leads to misconceptions as to the true capabilities of individuals with visual impairments (Kappan, 1994). Future O&M instructors learning the SL curriculum in university programs spend minimal and sporadic time in sleep-shade training in contrast to those learning the SDCT curriculum of instruction who spend extensive hours in visual occlusion training (Aditya, 2004).

According to Kappan (1994), minimal experience with occluded disability awareness activities has the potential to create false impressions and safety concerns while maneuvering about an area without proper training, and this limited experience leads to misconceptions as to the true capabilities of consumers. Limited experience was evident in this study in that SL instructors were less likely than SDCT instructors to demonstrate O&M tasks under sleep-shades. The lack of demonstration by any O&M instructor (sighted or blind) displays an absence of the instructor’s self-confidence in their own abilities as well as lowered confidence of consumers’ capabilities which further instills the custodial paradigm.

Another study included a performance-based comparison between consumers who had no previous O&M training and sighted individuals who were blindfolded. This study concluded that blindfolded normal-sighted individuals “did not develop the sensory and motor skills of their visually impaired counterparts” (Soong et al., 2001, para. 41) which was also revealed in this
study. Their investigation supports the need for a study to measure self-confidence of consumers post-O&M training rather than of occluded sighted individuals who, at any time, can remove their sleep-shades as individual situations and personal values dictate. In order to represent consumers’ self-confidence post-training, a comparison of the two O&M curriculums cannot in any way whatsoever be simulated using occluded sighted participants.

Who holds locus of control is also a fundamental difference between the SL and SDCT curriculums. According to Aditya (2004), SL instructors assume responsibility for the consumers’ safety until instructors can determine that consumers are able to assume shared responsibility. On the other hand, SDCT consumers maintain locus of control directly after receiving instruction on the basics of cane use (their first lesson), and henceforth the satisfaction remains with the consumer through their own successes (Mettler, 1995). Learning basic techniques of cane instruction is the foundation of O&M and, as such, is transferable to more advanced phases of travel (Blaha, 1967) and the levels of this transformation between the SL and SDCT curriculum was revealed through the participants in this study.

Movement involves spatial intelligence which can easily be noticed in proficient consumers who sometimes have “greater accuracy, confidence, and skill than sighted people” (Lazear, 1999, p. 65). Results of this study confirmed the SDCT curriculum offers participants higher self-confidence in their independent travel than the SL curriculum. In addition, this study revealed consumers who received the SDCT curriculum are more capable of building effective travel strategies which they could transfer post-O&M training to other situations and environments where they could solve a myriad of travel woes or obstacles associated with independent travel. These results mirror those of the veterans at Hines who were self-motivated during off-training hours and on weekends to travel to local establishments (Miyagawa, 1999).
Limitations

It was anticipated that locating participants who received instruction via the SDCT curriculum equal to those who received instruction via the SL curriculum would be a limitation considering the overwhelming number of instructors and rehabilitation agencies using the SL curriculum and because SDCT has only been in existence since 1997 while SL has been the primary curriculum used since the 1940s. Having the survey only being administered electronically was also considered to be a possible limitation for participants who do not have access to a computer, skills to access the internet (Crudden et al., 2017), and/or access to live readers. Also, because of the ongoing deliberation within the professional field of O&M instructors (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018), proponents from the conventional approach might air adverse reactions regarding this study as seen in Aditya’s (2004) study. Thus, negative comments might limit the already small consumer pool for this study in that some O&M instructors might not willingly forward information about this study to possible participants. Finally, another possible limitation might mirror Aditya’s (2004) study which discovered a weakness in finding employed participants.

None of the possible limitations listed above were of any significant consequence. Rather during data collection, I underwent an unexpected significant medical change-of-life event. This caused me to be unable to monitor the submitted surveys daily, as planned. Thus, there were suddenly more SL participants than SDCT. In order to recruit additional SDCT participants, postings were repeated on targeted Facebook group pages, and reminder emails were sent to SDCT rehabilitation agencies. Therefore, additional outreach was necessary to enable an equal number of SDCT to SL consumers and once the number of SDCT participants matched SL, survey collection terminated.
The second limitation was the timing of the survey which occurred during the holidays (Christmas and New Year’s). Although I had considered this to be a benefit, that is, as an opportunity for working participants to have time to fill out the survey, this timing hindered rehabilitation agencies from forwarding the survey link to possible participants because of their own holiday breaks. Thus, the collection of participants reached a lull until the holidays were over.

**Implications of the Results for Practice, Policy, and Theory**

One of the SDCT participants commented, “I’ve been waiting for someone to ask these questions!!!” By giving consumers the opportunity to voice their contributions towards a research-based O&M curriculum, this survey may cement the instructional locus of control back to the consumers, rather than university instructors. Thus, this implication supports the possibility that “if research can make the facts known, then the blind will be in a better position to make up their own minds” (Dodds et al., 1983) leading to Glasser’s informed choice regarding their O&M options. In addition, this study may help to settle the ongoing debate among O&M professionals as to which curriculum yields the highest level of self-confidence whereby “education is the key component and driver of emancipation and transformation” (Lumadi et.al., 2012, p. 302). Keep in mind, the conceptual framework for this study is Glasser’s choice theory (1998) whereby ideas or systems of belief direct or oversee behavior, and this principle holds true for both O&M professionals and consumers. Furthermore, it may benefit all taxpayers (sighted, blind or low vision citizens) because rehabilitation agencies who use the SDCT approach do so with less governmental funds than SL (Annual Disability Statistics Compendium, 2015).

Despite the shortage of O&M instructors (Pogrund & Griffin-Shirley, 2018), the profession of O&M is growing beyond only serving consumers to also instructing functional mobility skills to individuals with vision and cognitive disabilities (Blasch & Gallimore, 2013; Pogrund & Griffin-
This current issue of instructing O&M to those “who have disabilities but do not have a visual impairment” (Pogrund & Griffin-Shirley, 2018, p. 24) is sparking new controversy among O&M professionals (Aditya, 2004; Baldwin, 2016; Blasch et al., 1997; Cutter, 2007; Fazzi & Barlow, 2017; Mettler, 1995; Omvig, 2002; Pogrund & Griffin-Shirley, 2018). While some individuals with intellectual disabilities have developed self-taught O&M skills for community travel, one-to-one travel instruction is necessary for others (Blasch & Gallimore, 2013). Blasch and Gallimore (2013) state since O&M instructors have developed specialized expertise in teaching problem-solving techniques; it is recommended that O&M instructors can assist individuals with cognitive disabilities, as well. They add these individuals need to have opportunities to recognize problem-solving encounters to determine solutions.

Orientation and Mobility professionals understand the synthesis of skills in which instruction is necessary to have opportunities to link O&M skills smoothly; therefore, instruction focuses on “the whole of the independent travel being greater than the sum of its parts” (Blasch & Gallimore, 2013, p. 23). Holistic goals can only be successful when the instruction is devoted to the development of O&M skills and, according to Blasch and Gallimore (2013), the expanded future will require “O&M training for all people with disabilities who have mobility needs” (p. 30). Considering this group of individuals are not visually impaired, implications of this study may support that the use of a sighted guide is obsolete, warranting revision of the traditional curriculum. Opening the O&M profession to sighted individuals with intellectual disabilities will have the following benefits: (a) organizational cost efficiency; (b) increase in O&M referrals; and (c) reevaluation of the social and education policy, and practice/curriculum of O&M (Blasch & Gallimore, 2013).
Recommendations for Further Research

Considering this study occurred 20 years after the conception of SDCT, recommendations for future research include ongoing comparisons of self-confidence levels between SL and SDCT consumers for further evaluation with extended time allotment for survey collection. According to Kaiser et al. (2018), O&M instructors “conduct and participate in research to strengthen O&M teaching and learning, establish evidence-based practices, and inform public policy” (p. 9). However, this study is not one that can be done through O&M instructors, in particular, sighted occluded individuals, because it must be consumer driven and conducted within or around their environmental settings post-instruction. Instead, this study provided consumers the opportunity to express themselves so that perhaps their insights may foster instructional changes for future university programs and rehabilitation training for consumers which supports the necessary for this study to be repeated. Furthermore, a pre- and post-O&M training survey may provide additional comparison data between SL and SDCT curriculums.

Two additional studies to compare SL and SDCT for future O&M instructors (sighted or legally blind) may include (a) an evaluation of occlusion effectiveness training (Long, 1990) and, (b) self-confidence performing nonvisual skills (while occluded). Also, two comparison studies focused on self-confidence among (a) the two national consumer groups (the National Federation of the Blind and the American Council of the Blind) and, (b) between veteran and civilian consumers may reveal surprising results. Further investigation is necessary as to whether consumers consider sighted guide activities as formal lessons in O&M or if formal O&M instruction does not occur until the lesson focuses on the long, white cane, considering COMS instructors utilize sighted guide to and from the lesson’s targeted locations. Finally, studies focused on ongoing O&M curriculum development for individuals with cognitive disabilities without visual impairments are warranted.
Conclusion

Historically, the O&M profession in the United States is relatively new, and it is “an ever-evolving field that continues to change and expand over time” even though research regarding O&M has been a challenge because of its small population pool (Pogrund & Griffin-Shirley, 2018, p. 4). The traditional field of O&M has a strong tie with the U.S. Department of Veterans Affairs (Pogrund & Griffin-Shirley, 2018). Although Williams’ and Hoover’s ideas and accomplishments “have been embraced, enhanced, and extended to many who have benefited and will continue to do so” (Welsh & Hudson, 2011), it is not a secret in the O&M profession that there are many ongoing disputes among O&M professionals, beginning with the distinctly different curriculums between SL and SDCT (Aditya, 2004; Blasch et al., 1997; Fazzi & Barlow, 2017; Pogrund & Griffin-Shirley, 2018). These debates also include: sighted versus blind instructors (Baldwin, 2016; The Debate Over Standards, n.d.); visual versus cognitive (Mettler, 1995); allocentric versus egocentric (Baldwin, 2016); traditional or conventional versus nontraditional (i.e., Promotional Model) (Cutter, 2007); top-down versus bottom-up approaches (Cutter, 2007) and recently, a dispute involving instructing O&M to individuals without visual impairments (Pogrund & Griffin-Shirley, 2018) whereby “it might be considered a moral and ethical obligation of the O&M profession to provide mobility instruction to those in need even if individuals are not vision impaired” (Blasch & Gallimore, 2013, p. 31).

Some professionals prefer traditional methods and may develop strategies to resist meaningful action, “preferring the comfort of the familiar” (DuFour et al., 2006, p. 4) and are thereby oblivious to external changes and remain paralyzed within routine without any desire to create turbulence (Smith & Rigby, 2015). The SL paradigm paralysis may have occurred partly because of the lack of clear data or due to “the inability or refusal to see beyond current ways of thinking” or “beyond the present situation” in which focus was placed on what is “supposed to
work instead of what really works” (Smith & Rigby, 2015, p. XIV, 71, 73). Furthermore, “it is one thing to know that a certain method can be shown to achieve specified results by a group of people—it is quite another to find acceptance for a new method” (Leonard, 1968, p. 3). When something “has been with us so long that it is considered common sense, and we use it without thinking” or without reliable data to prove otherwise, it is similar to being unknowingly coerced (Glasser, 1998, p. 6). Thus, because of its longevity, professionals do not question the validity of the traditional SL curriculum.

This study was conducted to (a) explore relationships of when sighted/human guide instruction is presented to newly blinded consumers to determine if predictions could be made regarding their self-confidence levels post-O&M training and (b) if this relationship could be exposed via a comparison study focused on the travel habits of consumers post-O&M instruction of either the SDCT or SL curriculums. Research studies that compare O&M performance which differs on variables can impact the delivery of O&M services (Long, 1990) and according to Baldwin (2016), there is no research or central philosophy that the O&M profession can use to justify what is considered the best practice curriculum. Therefore, since the investigation of consumers’ travel habits post-training through this study has revealed that the nontraditional SDCT curriculum yields higher self-confidence than the SL curriculum by 32%, perhaps this finding will be used to overcome the O&M paradigm paralysis of the Custodial Paradigm through action towards acceptance of the Independence Paradigm. After all, according to Fazzi and Barlow (2017), O&M instructors engage in lifelong learning and “continue to be a driving force in shaping the future of the O&M profession” (p. XVI). As stated by Glasser (1998), ideas or systems of belief direct or oversee behavior and this principle holds true for both consumers and O&M professionals whereby their combined beliefs affect the quality world of current and future consumers.
To be successful, “open-mindedness, flexibility, patience, and courage” (Jacobs, 2010) are necessary for changing the mental models of how professionals instruct and assess O&M. Jacobs (2010) states the first step to curriculum modification is to alter perceptions and the second step is to be willing to form new routines/habits at the same time as abandoning old habits, adding it is necessary for a shared vision of the essential skills that consumers need to be successful. Furthermore, Pogrund and Griffin-Shirley (2018) conclude it is necessary for the requirement of “professional preparation curricula to continue to evolve to meet the needs of an even greater variety of students” (p. 290) because of the ever-changing population of individuals needing O&M instruction. Orr and Rogers (2001) state the steady, exponential increase in consumers “is the most significant factor that calls attention to the growing need and demand for services” (p. 670).

This study investigated the transformational efficacy of the two O&M curriculums and confirms that dependency on a guide for O&M lowers self-confidence and self-abilities whereby consumers who accept this external locus of control feel the need for additional O&M training when new travel situations/obstacles arise. Thus, having a curriculum which fosters transformational learning decreases the need for O&M instructors to teach-reteach. In addition, this study may help to settle the ongoing dispute among O&M professionals as to which curriculum yields the highest level of self-confidence. Keep in mind, this study was not intended to be a comparison to determine which certification is better, nor was it an attempt to conclude that blind instructors are superior to sighted ones. It was solely to answer the question as to which curriculum do consumers travel further and more often. By doing so, it evaluated which curriculum yielded the highest levels of self-confidence among consumers post-training.

Because consumers and O&M instructors have expressed divergent views regarding the O&M curriculum they learned either personally or through their university program (Wolf-Branigin et al., 2000), the purpose of this study was to determine which curriculum of instruction
offers consumers higher self-confidence. According to Fazzi and Barlow (2017), “research has not been conducted to determine the efficacy of one approach over another” (p. 96). That is, until this study. Through evaluating consumers’ independent travel habits post-O&M training, this study represented consumers’ self-confidence of their perceived O&M abilities and skills. By doing so, this study evaluated the hypotheses that there is a relationship between when sighted guide instruction is presented to newly blinded consumers which plays a pivotal role affecting self-confidence levels, and this relationship could be exposed via a comparison study focused on the travel habits of consumers post-O&M instruction of either SL or SDCT curriculums. This solid research challenged the status quo curriculum whereby SL hinders self-confidence and independent travel by overly stressing sighted guide instruction prior to the introduction of the long, white cane. Clearly, results of this study indicate that SDCT participants with a NOMC curriculum have higher self-confidence than SL participants with a COMS curriculum which supports my hypotheses. Thus, to establish a foundation for successful independent travel post-training, consumers need first to be introduced to the long, white cane and second have lessons focused on problem-solving skills.
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Appendix A: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously-researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does “fraudulent” mean?

“Fraudulent” work is any material submitted for evaluation that is falsely or improperly presented as one’s own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate’s final work without full and complete documentation.

What is “unauthorized” assistance?

“Unauthorized assistance” refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another’s work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.
Statement of Original Work (Continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University–Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*.
Appendix B: SPSS Analysis

Paired Samples Statistics

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Paired Samples Correlations

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Paired Differences

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<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>Sig. (2-tailed)</th>
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Worksheet:

\[ n^2 = \frac{t^2}{t^2 + (N_1 + N_2 - 2)} \]

\[ n^2 = \frac{3.3^2 / 3.3^2 + (20 + 20 - 2)} {10.89 / 48.89} \]

\[ n^2 = 10.89 / 48.89 \]

\[ n^2 = .22 \]
Appendix C: Survey Instrument

Orientation and Mobility Study 2018

Survey Flow

<table>
<thead>
<tr>
<th>Block: Opening Section (2 Questions)</th>
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<tbody>
<tr>
<td>Standard: Part One: DEMOGRAPHICS (7 Questions)</td>
</tr>
<tr>
<td>Standard: Part Two: FORMAL ORIENTATION AND MOBILITY TRAINING (21 Questions)</td>
</tr>
<tr>
<td>Standard: Part Three: POST ORIENTATION AND MOBILITY TRAINING (53 Questions)</td>
</tr>
<tr>
<td>Standard: Part Four: Optional (3 Questions)</td>
</tr>
</tbody>
</table>

Start of Block: Opening Section

Q1: Dear Participant - The targeted population for this survey are individuals who:

1) Are blind or visually impaired.
2) Completed *formal Orientation & Mobility (O&M) training in or after 1999 in the United States. (* = Formal training consists of instruction received in a state or private rehabilitation training center designed for individuals with visual impairments.)
3) Did not receive any *formal Orientation & Mobility training from a private or state rehabilitation agency prior to the age of 20.
4) Are between the ages of 20 and 70 (including the age of 20 and the age of 70).
5) Are NOT current or former O&M instructors.
6) Are NOT guide dog users.
7) Do not have additional disabilities (hearing impairment, mental, physical or other health concerns) which hinders independent travel.

☐ By checking here, I am stating that I meet the above guidelines to participate in this survey.

☐ I do not meet these guidelines.

Skip to: End of Survey if participant checks “I do not meet these guidelines.”

Q2: Dear Survey Participant,
Thank you very much for taking the time to fill out this PILOT Orientation & Mobility (O&M) Survey. Since I am unable to pay you for your participation, you have the option to submit your name and address (at the end of the survey) for a special drawing where you may receive one of two $25 Visa Gift cards. Later I will be conducting the full study and you are welcome to participate in that, as well, if you like. More about the study is directly below, afterwards is the consent to take this study.
Thanks again!

CONSENT FOR ANONYMOUS SURVEY

The purpose of this study is to examine and determine which curriculum of Orientation and Mobility (O&M) instruction, Sequential Learning (SL) or Structured Discovery Cane Travel (SDCT), yields the highest level of self-confidence for consumers within the
United States. I expect approximately 200 volunteers to take this survey and no one will be paid to participate in this study. I will begin enrollment on upon IRB approval and end enrollment approximately one month later. To be in the study, you must complete this online survey. You will be asked questions about your Orientation and Mobility (O&M) experience/habits after you received formal O&M training. Completing the survey will take less about 30 minutes. Please keep in mind that this online survey is anonymous, so we will not ask any personal identifying information. However, if you wish to participate in placing your name into a drawing for one of eight $25 VISA gift cards, you will need to provide your name and address. Drawing will take place at the end of the study and names will be destroyed directly after the drawing.

There are no risks to participating in this study other than the everyday risk of being on your computer as you take this survey. For me, I will receive the benefit of your answers which will help me understand your travel experiences/habits after your formal O&M training. In turn, you could benefit by reflecting on your own travel experiences/habits post your instruction.

All data is collected anonymously. The data you provide will be held privately within the on-line survey instrument. In the options section, if you were to write additional comments that made it to where we predict that someone could possibly deduce your identity, we would not include this information in any publication or report. All data will be destroyed three years after the study ends. At any time, you can discontinue answering the questions in this online survey. Please print a copy of this for your records. If you have questions you can talk to or write the Principal Investigator, Merry-Noel Chamberlain at mechamberlain@mail2.cuportland.edu. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email obranch@cu-portland.edu or call 503-493-6390).

Click the button below to consent to take this survey.

☐ I consent to take this study

End of Block: Opening Section
Q3: PART ONE: DEMOGRAPHICS (I would like to get to know you better.) Please note that you only need to answer the questions you feel comfortable to answer. As of today, I am:

- 20 – 29 years old
- 30 – 39 years old
- 40 – 49 years old
- 50 – 59 years old
- 60 – 70 years old
- I rather not say – however, I am between the age of 20 and 70.

Q4: I am:

- Female
- Male
- Other

Q5: I am:

- Blind
- Legally Blind

Q6: I consider my race to be:

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific
- White or Caucasian
- Other:

Q7: My currently my living situation is (List all that apply):

- I live in a house or apartment
- I live in a retirement community
- I live alone
- I live with my spouse or another adult
- I live in the city
- I live in the country
- I would rather not say
- Other:

Q8: I am a veteran:

- Yes
- No
Q9: My highest level of education BEFORE formal O&M training was:

- [ ] Grade school
- [ ] Some High School
- [ ] High School graduate or GED
- [ ] Some college
- [ ] College graduate (Bachelor’s Degree)
- [ ] Some post college courses
- [ ] Master’s Degree
- [ ] ABD - All But Dissertation
- [ ] Doctorate Degree

End of Block: Part One: DEMOGRAPHICS

Start of Block: Part Two: FORMAL ORIENTATION AND MOBILITY TRAINING

Q10: Super! Now we will do PART TWO. Here I will learn about your *FORMAL ORIENTATION AND MOBILITY TRAINING* Just so we all understand: *Formal training consists of instruction received in a state or private rehabilitation training center designed for individuals with visual impairments.*

- [ ] Yes, I understand that Formal training consists of instruction received in a state or private rehabilitation training center designed for individuals with visual impairments.
- [ ] No, I do not understand so I will re-read the statement above before I proceed.
Q11: The training center where I received formal O&M training was (THEY will not be contacted):

- The name, City, and State of my training center was:
  __________________________
- I do not remember.
- I don’t feel comfortable giving that information.

Q12: The name of my instructor was (This person will not be contacted):

- The name of my instructor was:
  __________________________________
- I do not recall.
- I don't feel comfortable giving that information.

Q13: The O&M certification my O&M instructor held was:

- COMS (Certified Orientation and Mobility Specialist)
- NOMC (National Orientation and Mobility Certification)
- Agency trained
- Unknown, I don’t recall, or I don’t feel comfortable giving that information

Q14: The year I complete formal O&M Training was:

- 1999 - 2000
- 2001 - 2002
- 2003 - 2004
- 2005 - 2006
- 2007 - 2008
- 2009 - 2010
- 2011 - 2012
- 2013 - 2014
- 2015 - 2016
- 2017 - 2018
- 2019

Q15: Before I began formal O&M training, I was informed of the type of O&M certification my instructor had (i.e., COMS or NOMC).

- Yes
- No
- I don’t recall

Q16: My O&M instructor was:

- Sighted
- Blind or Visually impaired

Q17: My instructor, who was blind or visually impaired, used a long white cane.

- Yes
- No
- Does not apply
Q18: My O&M instructor (visually impaired or sighted) *sometimes* would wear sleep-shades during my lesson to prove that the task could be done without vision.

- Yes
- No
- Does not apply, my instructor was totally blind.

Q19: My formal O&M training center required me to wear sleep-shades during the lessons.

- Yes
- No
- Sometimes
- Only if I wanted to

Q20: My formal O&M training center required me to wear sleep-shades during operating hours (i.e., 8:00 – 4:30) and I was not permitted to remove them between classes except during lunch or other structured breaks.

- Yes
- No

Q21: My first lesson in formal O&M focused on:

- Sighted/Human Guide
- Long, white cane

Q22: My formal O&M training instructor provided me with the following type of cane

- Rigid
- Folding
- Telescoping
- Other: _________________

Q23: The tip of the cane that was given to me by my O&M training instructor was:

- Marshmallow
- Metal
- Roller
- Other: _________________

Q24: The length of the cane that was given to me by my O&M training instructor was:

- About to my arm pit
- About to my chin
- Above my nose
- Other: _________________

Q86: I learned sighted guide before I learned how to use the long, white cane.

- Yes
- No
- What is signed guide?
Q25: The amount of formal O&M training (in hours) I received per week was about or on average:

- 1 – 5 hours per week (or one hour a day)
- 6 – 10 hours per week (or just over an hour to two hours a day)
- 11 – 20 hours per week
- 20 – 30 hours per week
- More than 31 hours per week

Q26: To the best of my knowledge, the total months & weeks I attended the training center was about:

- Less than one Month (up to 4 weeks)
- About 2 months
- About 3 months
- About 4 months
- About 5 months
- About 6 months
- About 7 months
- About 8 months
- About 9 months
- About 10 months
- About 11 months
- More than 12 months

Q27: The training center I attended went on group field trips/outings where I was required to wear sleep-shades:

- No
- Yes: Please list some of the field trip locations: ________________________

Q28: I was required to complete a final travel route/drop route (while wearing sleep-shades) as part of my graduation requirement from formal O&M training:

- Yes, and I was required to wear sleep-shades
- Yes, but I was not required to wear sleep-shades
- No
- No because I dropped out of O&M training

Q29: I successfully completed O&M training

- Yes, I successfully completed O&M training
- No, I did not complete O&M training due to the following reason: ________________

End of Block: Part Two: FORMAL ORIENTATION AND MOBILITY TRAINING

Start of Block: Part Three: POST ORIENTATION AND MOBILITY TRAINING
Q30: Thank you for sticking with this survey. Here is where I will learn about your travel habits since you completed your formal training: PART THREE: POST ORIENTATION AND MOBILITY TRAINING Please note the following when answering the questions below regarding your current travel skills, habits or abilities:

A) **Independently** means *without a sighted or human guide*.

B) Traveling with a human/sighted guide is when the guide is the leader and you are in physical contact with the guide by holding/touching to his/her elbow, shoulder, hand, back, etc.

C) Traveling by Taxi, Uber, or any public transportation (bus, train, plane, subway, etc.) is not considered traveling with a sighted or human guide unless the guide (as described above) is present.

☐ Yes, I understand that “Independently means traveling without a sighted or human guide.”

☐ No, I do not understand but will review the statement above before I proceed.

Q31: I travel with a sighted or human guide whenever I leave my home or apartment.

☐ Never

☐ Sometimes

☐ Always

Q32: If/when I travel with a sighted or human guide, my guide is or has been (Check all that apply):

☐ My spouse

☐ My child

☐ Another family member who is not my spouse or my child

☐ A friend/neighbor

☐ A staff member/employee

☐ A paid sighted or human guide

☐ My O&M instructor

☐ Other _______________________

Q33: **Independently** I have left my home without my cane but remained within my block or complex

☐ Never

☐ Sometimes

☐ Always

☐ N/A

Q34: I can or have *independently* crossed uncontrolled ***residential streets*** when traveling.

☐ Never

☐ Sometimes

☐ Always

☐ N/A
Q35: I can or have *independently* crossed residential streets that have stop signs when traveling.

- Never
- Sometimes
- Always
- N/A

Q36: I can or have *independently* crossed streets with traffic lights when traveling.

- Never
- Sometimes
- Always
- N/A

Q37: I can or have *independently* "walked" to locations two to five blocks away from my home or apartment.

- Never
- Sometimes
- Always
- N/A

Q38: I can or have *independently* "walked" to locations six to ten blocks away from my home or apartment.

- Never
- Sometimes
- Always
- N/A

Q39: I can or have *independently* "walked" to locations six to ten blocks away from my home or apartment.

- Never
- Sometimes
- Always
- N/A

Q40: I can or have *independently* "walked" beyond ten blocks away from my home or apartment.

- Never
- Sometimes
- Always
- N/A

Q41: I can or have *independently* "walked" to the bus stop and took the bus to location(s) of my choosing.

- Never
- Sometimes
- Always
- N/A

Q42: I can or have *independently* traveled outside my city/town limits.

- Never
- Sometimes
- Always
- N/A
Q43: I can or have independently traveled outside my state.

- Never
- Sometimes
- Always
- N/A

Q44: I can or have independently traveled outside the United States.

- Never
- Sometimes
- Always
- N/A

Q45: I can or have independently traveled to visit my friend or family.

- Never
- Sometimes
- Always
- N/A

Q46: I can or have independently traveled whenever I want, within means.

- Never
- Sometimes
- Always
- N/A

Q47: I can or have independently traveled wherever I want, within means.

- Never
- Sometimes
- Always
- N/A

Q48: I can or have independently traveled to my job (paid or volunteer).

- Never
- Sometimes
- Always
- N/A: I do not have a job (paid or volunteer)

Q49: I can or have independently traveled to my higher education classes (community college or university).

- Never
- Sometimes
- Always
- N/A: I am not taking any higher education classes.
Q50: For the next section, please rate these statements with number one as being absolutely NOT true and number six as being absolutely very true.

- Okay. I get it: the higher the number the truer the statement is in representing me.
- No, I do not understand but will review the statement above before I proceed.

Q51: I **always** travel outside my home using a long, white cane:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q52: I **never** travel outside my home using a long, white cane:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q53: I am comfortable leaving my home environment with or without my cane:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q54: I only leave my home when I have a sighted or human guide:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true
Q55: I would rather venture out than stay home:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q56: I would rather travel independently than with a human or sighted guide whenever I leave my home:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q57: I am proud of using my long, white cane:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q58: I consider my cane as a symbol of independence:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q59: It does not bother me to use my cane around other people:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q60: I consider my cane as a tool for independent travel:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true
Q61: I never leave my home environment without my cane:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q62: I do not think I will ever need to obtain additional O&M training:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q63: People have complimented me on how great of an independent traveler I am:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q64: My friends who are blind/visually impaired ask me for tips on how to be an independent traveler:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q65: I travel *whenever* and *wherever* I want:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q66: I don’t hesitate to go someplace if I want to so long as I have my cane:

- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true
Q67: I don’t hesitate to go someplace if I want to so long as I have a sighted guide:
    - One (1) - Absolutely NOT true
    - Two (2) - Not true
    - Three (3) - Somewhat not true
    - Four (4) - Somewhat true
    - Five (5) - True
    - Six (6) - Absolutely VERY true

Q68: I *never* travel to a new place for the first time (like a new doctor’s office) without a sighted/human guide:
    - One (1) - Absolutely NOT true
    - Two (2) - Not true
    - Three (3) - Somewhat not true
    - Four (4) - Somewhat true
    - Five (5) - True
    - Six (6) - Absolutely VERY true

Q69: When traveling to an unfamiliar location (such as a new doctor’s office), I sometimes call ahead for directions and then will travel there independently:
    - One (1) - Absolutely NOT true
    - Two (2) - Not true
    - Three (3) - Somewhat not true
    - Four (4) - Somewhat true
    - Five (5) - True
    - Six (6) - Absolutely VERY true

Q70: I would rather stay home than venture out independently:
    - One (1) - Absolutely NOT true
    - Two (2) - Not true
    - Three (3) - Somewhat not true
    - Four (4) - Somewhat true
    - Five (5) - True
    - Six (6) - Absolutely VERY true

Q71: I do not like my cane:
    - One (1) - Absolutely NOT true
    - Two (2) - Not true
    - Three (3) - Somewhat not true
    - Four (4) - Somewhat true
    - Five (5) - True
    - Six (6) - Absolutely VERY true

Q72: I refuse to use the cane because I don’t want other people to know I am blind:
    - One (1) - Absolutely NOT true
    - Two (2) - Not true
    - Three (3) - Somewhat not true
    - Four (4) - Somewhat true
    - Five (5) - True
    - Six (6) - Absolutely VERY true
Q73: The cane is a symbol of weakness:
- One (1) - Absolutely NOT true
- Two (2) - Not true
- Three (3) - Somewhat not true
- Four (4) - Somewhat true
- Five (5) - True
- Six (6) - Absolutely VERY true

Q74: Great! We are done with that! – We are on the home stretch! SINCE my formal O&M training (check all that apply):
- I became employed or volunteer part-time or full-time
- I am currently looking for a job
- I have or plan to further my education by returning or enrolling in college
- I am happy, content and am enjoying life
- I retired (due to my age)
- I went on Social Security Disability
- OTHER: ______________________

Q75: SINCE my formal O&M training, I have returned for additional O&M training (number) times:
- Zero – zip
- One or more - The reason(s) I returned for O&M training was/were: ______________________

Q76: SINCE my formal O&M training:
- I always use a sighted/human guide whenever I leave my home environment
- I only use my cane whenever I leave my home environment
- Other: ______________________

Q77: SINCE my formal O&M training:
- I use my cane all the time
- I can no longer use the cane because: ______________________

Q78: SINCE my formal O&M training, the TYPE of cane I prefer is:
- Rigid
- Folding
- Telescoping
- Other ______________________

Q79: SINCE my formal O&M training, the cane TIP I prefer is:
- Marshmallow
- Metal
- Roller
- Other: ______________________
Q80: SINCE my formal O&M training, the LENGTH of cane I prefer is:

- Around my arm pit
- Between my chin and nose
- Above my nose
- Other: ______________________

Q81: Is there any information you would like to share regarding your feelings towards your travel or formal O&M training that was not addressed in this survey?

- No
- Yes: Please add those comments here: ____________________________

Q82: Please check whichever applies regarding assistance in filling out this survey:

- I filled out this survey without assistance from a human (I only used technology).
- I received assistance from the following person to fill out this survey (i.e.: Vocational Rehabilitation Counselor, Former O&M Instructor, Family, Friend): ________________

End of Block: Part Three: POST ORIENTATION AND MOBILITY TRAINING

Start of Block: Part Four: Optional

Q83: Great news! You have reached the last section and it is very short! PART FOUR: OPTIONAL and CONFIDENTIAL

I belong to the following consumer organization (Please check all that apply):

- American Council of the Blind (ACB)
- National Federation of the Blind (NFB)
- I belong to both organizations listed above
- I do not belong to any consumer organization
- Other: ________________________________
- I don't feel comfortable answering this question
Q84: I would like to place my name in the drawing to receive one of two $25 Visa gift cards.

- No thanks
- Yes! I realize my contact information below is confidential and I am aware my contact information will be discarded after the drawing (Please fill in all the information below to ensure you receive the Visa gift card if your name is selected in the random draw.)

- Name: ________________________________________________
- Street Address: _________________________________________
- City: ______________________
- State: _________________________________________________
- Zip code: _________________
- Phone number with area code: _______________________________
- Email address: ___________________________________________

Q85: Thank you very much for completing this survey. Your input is extremely appreciated (Please check all that apply)!

- Okay, goodbye.
- I hope I win!
- I’m so happy this is over!
- Other: __________________

End of Block: Part Four: Optional