
8-7-2017

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Recommended APA Citation

Wolsey, J. A. (2017). Perspectives and Experiences of DeafBlind College Students. *The Qualitative Report*, 22(8), 2066-2089. <https://doi.org/10.46743/2160-3715/2017.2739>

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Abstract

DeafBlind individuals are resilient human beings who face significant and complex challenges in all aspects of life. Challenges include access to information, communication, academics, social activities, identity, independence, mobility, and moving around in the world. Recently, more DeafBlind students are attending higher education institutions. Therefore, this study focuses on discovering experiences and perspectives of DeafBlind college students who attend a bilingual and bicultural university for sighted Deaf students, where there are a limited number of DeafBlind students. Personal interviews and observations are used to explore how DeafBlind adults navigated college life and what coping strategies they used to overcome academic and social challenges. A grounded theory-based approach was used, as an analysis, as there is limited information and research available about DeafBlind college individuals. Insights and strategies are provided to support new DeafBlind students who plan to attend post-secondary education or are already attending college.

Keywords

DeafBlind, Adults, College, Communication, Academics, Social, Strategies

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Acknowledgements

The author wants to thank participants for sharing their experiences and insights. This manuscript was originally developed in a research class at Gallaudet University and revised in a "Writing for Publication" seminar at Lamar University. A special thank you and appreciation to M. Diane Clark for her mentorship, guidance, and support, as well as the author's colleagues for their peer reviews.

Perspectives and Experiences of DeafBlind College Students

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DeafBlind individuals are resilient human beings who face significant and complex challenges in all aspects of life. Challenges include access to information, communication, academics, social activities, identity, independence, mobility, and moving around in the world. Recently, more DeafBlind students are attending higher education institutions. Therefore, this study focuses on discovering experiences and perspectives of DeafBlind college students who attend a bilingual and bicultural university for sighted Deaf students, where there are a limited number of DeafBlind students. Personal interviews and observations are used to explore how DeafBlind adults navigated college life and what coping strategies they used to overcome academic and social challenges. A grounded theory-based approach was used, as an analysis, as there is limited information and research available about DeafBlind college individuals. Insights and strategies are provided to support new DeafBlind students who plan to attend post-secondary education or are already attending college. Keywords: DeafBlind, Adults, College, Communication, Academics, Social, Strategies

Imagine individuals who are DeafBlind¹ and do not have full access to the world; their access is only to the end of their fingertips (Miles, 2008). Imagine being a DeafBlind student and attending a sighted² college. These individuals are a unique group with exceptional individual communication abilities and preferences, with multitude of challenges that impact their academic, social, and emotional development (Chen, 2004; Vervloed, van Dijk, Knoors, & van Dijk, 2006). DeafBlind individuals need opportunities to explore, create, question, share, and stimulate their senses on all levels; academically, linguistically, socially, emotionally, and physically. These opportunities allow them to learn about their surroundings and interact with others who are sighted or non-sighted. Most, if not all, DeafBlind individuals rely on additional modes of learning and communication, such as touch to receive reliable access to clear visual and auditory information (Miles, 2003; MN DeafBlind Technical Assistance Project, n.d.). Through visual and/or tactile communication, DeafBlind individuals can access language, engage in lifelong learning, and build relationships with others. Using hands tactually plays a critical role in all areas of human development especially with communication and language (Miles, 2003). Language is the basic foundation for DeafBlind individuals to communicate, connect, and build relationships with others (Chen, 2004; Vervloed et al., 2006).

Limited research has been conducted on this small population (Vervloed et al., 2006) and even less is known about DeafBlind college students. It has been found that DeafBlind individuals now have more opportunities to attend college with their peers due to support services, increased awareness, and current federal laws such as the Americans with Disabilities Act (ADA) of 1990 (Arndt, 2010, 2011; J. Shaumeyer, personal communication, February 6, 2015). How DeafBlind students access education and social opportunities differ from those who are Deaf, hearing, or sighted. While college life is rewarding and challenging for students who are hearing and sighted, it was known to bring complex challenges and barriers for

¹ DeafBlind is used, as an adjective, to describe a person who is DeafBlind or what they are diagnosed with.

² Sighted refers to individuals who use their eyes to view the world visually and acquire information (Duffy, 2012)

students who are DeafBlind. How are they engaged in college life? What kinds of support systems do they experience to ensure that they have positive academic and social experiences?

There is multitude of information that includes resources and strategies for DeafBlind children and adults that relate to support systems. Information includes background on deafblindness, different types of communication systems, individualized and inclusive education for children, educational support services, reasonable accommodations in the community and workplace, transition planning, technological devices, and rehabilitation services (Chen, 2004; Correa-Torres, 2008; Deasy & Lyddy, 2009; Hart, 2006; Preisler, 2005; Vervloed et al., 2006). Resources include the importance of literacy, orientation and mobility, advocacy skills, and intervenor/support service provider (SSP) services (Chen, 2004; Correa-Torres, 2008; Deasy & Lyddy, 2009; Hart, 2006; Preisler, 2005; Vervloed et al., 2006). Strategies include how to cope and live with a vision loss, how to communicate with DeafBlind individuals, and how to support families who have DeafBlind children (Chen, 2004; Correa-Torres, 2008; Deasy & Lyddy, 2009; Hart, 2006; Preisler, 2005; Vervloed et al., 2006). However, there is limited peer-reviewed research available about DeafBlind college students who describe their personal experiences and perspectives attending a sighted college environment.

Due to the need for more research about DeafBlind college students, a qualitative research methodology -- grounded theory was used to understand a specific phenomenon and analyze the data (Fram, 2013). The researcher attempted to develop a theory about a phenomenon of interest that was to emerge from the data collected, which is through the subjective world of participants through interviews and observations. Theory was grounded from human action, interaction and the participants' words (Creswell, 2013). This study examined several components to understand the significant challenges that DeafBlind college students face. They included:

1. Characteristics of individuals who are DeafBlind;
2. Impact of being DeafBlind;
3. Importance of touch and hands;
4. Federal laws;
5. Research questions;
6. Method; and
7. Discussion.

Characteristics of DeafBlind Individuals

Being DeafBlind is a condition that is a combined dual sensory loss of both hearing and vision that creates challenges in all aspects of one's life (Chen, 2004; Dalby et al., 2009a; Dalby et al., 2009b; Deasy & Lyddy, 2009; Vervloed et al., 2006). Challenges include communication with others, language development, access to information, independence, mobility, and moving around in their world (Chen, 2004; Miles, 2008; Deasy & Lyddy, 2009; Sense, 2015; Vervloed et al., 2006). There are several definitions for people who are DeafBlind due to varying degrees of deafness and blindness that may combine with other disabilities. DeafBlind children and adults often require significant and individual adaptations with communication and language in their home, at school, and in the community.

Some people may assume that being Deaf and Blind refers to having no hearing or vision, but this assumption is not always the case. In fact, it is extremely rare to be completely Deaf and Blind (Chen, 2004; Deasy & Lyddy, 2009; Sense, 2015). DeafBlind people are not all the same. Some are born deaf and later become blind, and vice versa. Due to varying degrees of hearing and vision levels, some DeafBlind individuals may have some usable vision

to see sign language at close distances, recognize familiar people, read large print, or have the ability to navigate their environment (Chen, 2004; Deasy & Lyddy, 2009; Miles 2008; Sense, 2015). Other individuals may have the ability to hear or recognize sounds (Miles, 2008; Sense, 2015). According to the Usher Syndrome Coalition (2015), most DeafBlind people may not notice any definite vision restrictions until they are in their thirties. Before then, some do not notice or realize the severity of their vision loss.

Up to eighty percent of DeafBlind individuals also have additional physical, medical, and/or cognitive challenges (MN DeafBlind Technical Assistance Project, n.d.; National Center on Deaf-Blind, n.d.). Wide range of cognitive and developmental abilities range from profound to gifted (MN DeafBlind Technical Assistance Project, n.d.; National Center on Deaf-Blind, n.d.). The window to a DeafBlind person's world is narrower, which requires them to have ongoing physical contact with others to understand the concepts of their surroundings. Without access to consistent and ongoing human contact, they are alone (Miles, 2008).

Prevalence. This population is a low incidence group in which the prevalence is 0.1% of the population (Chen, 2004; Deasy & Lyddy, 2009; U.S. Department of Education and Office of Special Education Programs, 2011; Vervloed et al., 2006). There are high levels of variability among DeafBlind children and adults such as that their lack of hearing and vision can either be congenital or acquired. There are no current and up-to-date statistics on the exact number of children, youths, and adults who are DeafBlind due to varying degrees of hearing and vision levels. The MN DeafBlind Technical Assistance Project (n.d.) has found that approximately 70,000 people in the United States (US) are DeafBlind. The project has also found that deafblindness may occur in 3 of 100,000 births. According to Gallaudet Research Institute's (GRI) Annual Survey of Deaf and Hard of Hearing Children and Youth (2011), 5.7% of deaf and hard of hearing students have been identified with a vision loss such as low vision, legal blindness, or Usher syndrome. For DeafBlind adults, the population is estimated at approximately 35,000-40,000 (Watson, 1993; as cited in Miles, 2008). The Texas Council for Developmental Disabilities (2013) in the United States has found that during the 2003-2004 school year, DeafBlind students who had additional disabilities portrayed 0.03% of all special education students. These small numbers show that being DeafBlind with additional disabilities is not highly common.

Etiology. There are a number of causes of deafblindness that are either congenital or acquired. Congenital deafblindness occurs when infants are born with significant losses of both vision and hearing. It can also occur during the first two years of life (or early development of language) if an infant develops both hearing and vision loss before they have learned to communicate with spoken language, sign language, or another form of communication (Sense, 2015; Senses Australia, 2016). This lack of dual sensory input may happen when infants acquire a disease, or experience an injury or trauma (Senses Australia, 2016).

The major causes of congenital deafblindness vary among individuals. From the 2012 Deaf-Blind Child Count, primary etiologies include hereditary (such as Down Syndrome, Trisomy 13 Syndrome, and Usher Syndrome), complications related to prematurity, multiple congenital anomalies (such as CHARGE Syndrome, Fetal Alcohol Syndrome, and maternal drug abuse), congenital prenatal dysfunctions (such as Rubella, AIDS, and Toxoplasmosis), and post-natal causes (such as trauma; Dalby et al., 2009a; Deasy & Lyddy, 2009; Miles, 2008; National Center on Deaf-Blindness, n.d.). As stated earlier, deafblindness is often accompanied by additional disabilities. For example, maternal rubella can affect the heart and brain. Another example is that genetic syndromes may cause cognitive and/or physical disabilities. (Deasy & Lyddy, 2009; Texas Council for Developmental Disabilities, 2013).

On the other hand, a large number of individuals become Deaf and Blind in their early years during childhood or adulthood after the development of language (Sense, 2015). They

tend to occur through accidents, illnesses, diseases, genetic conditions, or aging (Sense, 2015). There are three types of acquired deafblindness. Some people may be born hard of hearing or deaf, and later have their vision deteriorate. Others may be born with low vision or blind, and later lose their hearing. Some people may be born with both vision and hearing, and later lose some or both of their senses. These individuals are referred to as being adventitiously DeafBlind (Miles, 2008; Senses Australia, 2016).

Usher Syndrome. Some people consider Usher syndrome to be a congenitally DeafBlind condition since approximately 50 percent of people in the DeafBlind community inherit this rare genetic condition (American Association of the Deaf-Blind, 2011). According to Dalby et al. (2009b), the estimated prevalence of Usher syndrome ranges from 3.3 to 6.2 per 100,000 individuals who are DeafBlind; therefore this syndrome is common worldwide. This condition, which has three types, causes individuals to be born deaf, hard of hearing, or hearing, and progressively lose their hearing or vision later in life, as they reach adulthood (American Association of the Deaf-Blind, 2011; Usher Syndrome Coalition, 2015). The common symptoms of Usher syndrome are a hearing loss and an eye disorder called retinitis pigmentosa (RP), which causes night blindness, tunnel vision (loss of peripheral vision), and sometimes balance problems (Dalby et al., 2009a; Deasy & Lyddy, 2009; Miles, 2008; National Center on Deaf-Blindness, n.d.; Usher Syndrome Coalition). However, because both vision and hearing loss do not occur at birth simultaneously or before communication has developed, Usher syndrome is considered one of the causes for acquired deafblindness (American Association of the Deaf-Blind, 2011).

The majority of individuals, who have acquired deafblindness, are a critical group of individuals who face additional challenges after losing some or all of their hearing or vision at different stages of life. They often need to receive rehabilitation services to develop adaptive and coping skills such as orientation and mobility to maintain their independence, communication, confidence, and daily living skills (Miles, 2008; Senses Australia, 2016). Some DeafBlind adults, who are born sighted with a hearing loss, may grow up using American Sign Language (ASL) (or spoken language), as well as be active members in the Deaf community. They learn to adjust to their environment around them when their hearing and vision changes over the years. In Seattle, Washington, there is a large number of individuals in the DeafBlind community who have adapted in this way (Edwards, 2014). There may be more visual communication options for Deaf individuals (e.g., visual ASL - VASL, spoken language, lipreading, cued speech, simultaneous communication, written text) but DeafBlind adults learn to adapt to their limited vision and communication modalities. They include incorporating tactile ASL (TASL), close vision, or adapted signs in VASL in a smaller space. Each DeafBlind person is different in how they communicate.

Impact of Being DeafBlind

Individuals who are either born DeafBlind or acquire it after birth in a later stage in life have complex challenges when attempting to acquire language and communication skills due to the lack of dual sensory input. Several projects have found that approximately 80 percent of what people learn is through visual input; however the sense of hearing is primarily for communication and language (Texas Council for Developmental Disabilities, 2013; MN DeafBlind Technical Assistance Project, n.d.). Generally, sighted hearing individuals have access to auditory and visual sensory input. Sighted Deaf individuals learn through a visual modality. Non-sighted hearing individuals learn through an auditory input. Since sighted Deaf individuals do not hear and learn all the vocabulary like their sighted hearing peers, they miss out on incidental learning. They “depend on vision to a greater extent than their [sighted] hearing peers” (Hauser & Marschark, 2008, p. 449). For DeafBlind individuals who do not

have access to these two major sensory inputs to receive and express information, they compensate through their sense of touch (MN DeafBlind Technical Assistance Project, n.d.). Hauser and Marschark (2008) have found that “information presented in visual and auditory modalities together leads to better comprehension, learning, and memory than information in either modality alone” (p. 449). Therefore, this lack of dual sensory input has a significant impact on their development with communication, language, motor, cognitive, emotional/social, and body image/self-concept (Texas Council for Developmental Disabilities, 2013).

Early Intervention. According to the MN DeafBlind Technical Assistance Project (n.d.), early intervention is a critical component for DeafBlind individuals to receive intense individual one-on-one attention to stimulate their interest and understanding of the world around them. Early intervention provides direct teaching of information and experiences that sighted and hearing children pick up naturally from overhearing or overseeing what others say or do (Educational Intervention is Critical to Children who are DeafBlind section, para. 1). Research has found that early access enables consistent and ongoing linguistic input while the brain is adaptable to language acquisition (Petitto, 2014). Chen (2004) reports that early identification of an infant or child who may have a hearing and/or visual loss differs. Since a hearing loss is invisible, it is usually identified later, whereas a child who may have a visual loss tends to be identified earlier (Chen, 2004). However, with the passing of the universal *Newborn and Infant Hearing Screening and Intervention Act* that was implemented in 1999, more infants’ are being identified earlier (National Institutes of Health, 2013). The National Expert Panel to the National Center for Children’s Vision and Eye Health recommends that children be screened annually for their vision between ages 36 months to 72 months for healthy development of their vision, unless caregivers suspect their child/children of having difficulty seeing during the first two months (Cotter, Cyert, Miller, & Quinn, 2015; Peterseim & Arnold, 2015). Professionals play an important role by working with parents and educating them that early identification of their child’s hearing and visual loss is sometimes difficult but is critical to obtain early intervention services right away, as soon as their child is diagnosed (American Foundation for the Blind, 2015; Chen 2004; Deasy & Lyddy, 2009). That way, early intervention specialists and parents can provide early access to communication and language for DeafBlind children to meet their dual sensory needs (Chen, 2004; Deasy & Lyddy, 2009). Early intervention is the link to develop a strong communication foundation and establish appropriate support services to meet their learning needs. This critical link allows DeafBlind individuals to become future independent, active, and self-sufficient adults in the community.

Communication. Unlike sighted hearing and Deaf individuals, DeafBlind people cannot access language independently without a tactile and visual communication system. Such communication systems must be tailored to the needs of DeafBlind individuals that include: tactile sign language (ASL, Signed English, fingerspelling, tracking, print on palm, hand over hand), visual sign language in close vision (ASL, Signed English, fingerspelling, adapted signs), touch cues, gestures, object symbols, picture symbols, large print writing/reading, braille writing/reading, and assistive technology (American Association of the Deaf-Blind, n.d.; Blaha & Carlson, 2007; Miles, 2008; Texas Council for Developmental Disabilities, 2013). When DeafBlind individuals learn the various communication tools that are available to them, they can access the world of learning, language, and reach their maximum potential. DeafBlind individuals need continual and consistent access and exposure to communication and language to foster healthy and positive development in all areas (Miles, 2008). As they become adults, a large part of their communication and language skills are due to what they received since early childhood.

The Importance of Touch and Hands

DeafBlind individuals have minimal opportunities and limited mechanisms to access communication and language unless they have direct touch with a person to learn and explore their surroundings (Miles, 2008). They also “depend upon the goodwill and sensitivity of those around them to make their world safe and understandable” (Miles, 2008). Their perception of the world is different when both their auditory and visual sensory inputs are blocked. Therefore, they need to use their other senses such as touch, smell, taste, and body awareness (Sense, 2015). When they are provided with modality-appropriate stimulation to communicate (Lane, 1997; as cited in Miles, 2003), they can achieve early bonding and hand autonomy with any residual vision and/or hearing to make connections throughout their developmental milestones (Miles, 2003). Just like sighted individuals, DeafBlind individuals have a need to explore, reach, grasp, feel their surroundings, and initiate topics in conversational interactions.

Eyes, Ears and Voice. As previously mentioned, the hands of a person play an important role in the lives of DeafBlind individuals. The hands act as the eyes and ears for DeafBlind individuals to receive information, as well as their voice to express as a means of communication similarly to sighted Deaf individuals (Miles, 2003). If DeafBlind individuals do not have access to a person’s hands to tactually connect to family members, teachers, peers, or the world, they are unable to engage in meaningful interactions. Hands provide DeafBlind individuals with freedom and access to others and their surroundings (Stine, 1997; as cited in Miles, 2003). According to Miles (2003), touch is neglected in today’s culture and hands have been often ignored as a way to express thoughts, emotions, and ideas. Hands play a significant role that provides vital tactile linguistic connections in a meaningful way for DeafBlind individuals; they must be made readily available (National Center on Deaf-Blindness, n.d.).

Early Access. According to Lane (1997; as cited in Miles, 2003) and Petitto (2014), the human brain is flexible to process information when one or more senses are used regularly and at an early age. For DeafBlind individuals who use their hands and fingers extensively, there is evidence that the human brain can process tactile information from the same processing area as hearing and vision (Lane, 1997; as cited in Miles, 2003). The earlier DeafBlind individuals learn to use their hands and fingers, the more access and exposure they have to objects, people, and language, as well as the ability to communicate with others (Miles, 2003).

Braille. The use of hands and fingers also play a critical role in using braille to access print and literacy, if DeafBlind individuals do not have sufficient eyesight for reading materials in text (Berrier, 2014; CNIB, 2015). Braille is not a language (American Foundation for the Blind, 2015). It uses a code system that consists of small raised dots in which DeafBlind individuals use the fingertips (i.e., pad of finger) of the index finger to feel the combination of dots from left to right (American Foundation for the Blind, 2015; CNIB, 2015). It reads anything from words to math to music, and can be read and written in different languages such as English or Spanish (American Foundation for the Blind, 2015; Berrier, 2014; CNIB, 2015). Braille can be written or read. DeafBlind individuals who learn braille are just like sighted people who learn to read and write with a pencil or pen (Berrier, 2014). With advances in technology with different types of braille readers and writers, DeafBlind individuals are able to access information independently and write their messages in braille. Through braille, they have the ability to read restaurant menus, business cards, ATM keypads, textbooks, and signage (American Foundation for the Blind, 2015; CNIB, 2015). Early access and exposure to braille provides DeafBlind individuals with early developmental skills with communication, language, literacy, education, employment, independence, lifelong learning, and meaningful interactions with others who use print and technology (CNIB, 2015). Therefore, braille is the foundation to communication, literacy, and independence, as it provides tools to unlimited information (Berrier, 2014; CNIB, 2015).

Pro-Tactile. Pro-Tactile was developed by two well-known DeafBlind community leaders from Seattle, Washington, Jelica Nuccio and aj granda (Pope & Collins, 2014). It was created in 2007 but was not widely known to the DeafBlind community until 2012. The Pro-Tactile movement began when DeafBlind individuals were missing valuable visual information and were not feeling connected with communication partners during interactions (Edwards, 2014; Pope & Collins, 2014). Pro-Tactile was defined as a way to get visual information, “support tactile reception...and create a world that [was] natural” for DeafBlind individuals (Nuccio & granda, 2013a: English translation from ASL). DeafBlind individuals value touch in the same way that hearing individuals value sound and voices. Sighted Deaf individuals value vision. While Pro-Tactile is pro-touch, pro-experience, and pro-responsibility, it was developed, as a practice, to support hands-on learning and experience rather than limiting the experience to the DeafBlind individual (Nuccio & granda, 2013a). Pro-Tactile is a philosophy, method, and attitude (Nuccio & granda, 2013a). It was developed not only for DeafBlind individuals but also for sighted hearing and Deaf individuals, as well as interpreters (e.g. close vision and tactile) (Nuccio & granda, 2013a).

According to Nuccio and granda (2013b), Pro-Tactile involves a system of tactile feedback and cues called “backchanneling,” which provides communicators with information about each other and their responses to what is being communicated. Backchanneling is the number one Pro-Tactile practice that is used when facing one another or standing up. For instance, while one DeafBlind individual is communicating in tactile ASL (TASL) to another DeafBlind, Deaf, or hearing individual, the listener is “listening” using Pro-Tactile. By tapping on the other person’s knee, leg, mid-arm, shoulder, upper back, or hand, that person is providing tactile feedback to show their agreement, disagreement, or a response. They are simply listening, maintaining a connection, and showing their presence. If one is nodding his/her head, he/she taps the other person in the same rhythm; head nodding matches the tapping. When Pro-Tactile is used, it tells the person about what the other person is like and provides a sense of how they relate to one another (Nuccio & granda, 2013a). Without using backchanneling and Pro-Tactile, these individuals do not know how the other person is responding and do not have access to share visual and linguistic information. Therefore, they have limited interactions with others. Nuccio and granda (2013a) created this breakthrough to provide natural feedback between two people rather than leave them out of conversations or group discussions. Pro-Tactile is immediate and inclusive since information is shared smoothly.

This tactile feedback is similar to how sighted Deaf individuals respond with their facial expressions. Visual cues such as tactile cues to know what is going on in the environment around them and be part of nodding their head, dropping their jaw, or widening eyes are what Deaf individuals rely on for feedback; either from hearing or Deaf individuals. In contrast, DeafBlind individuals rely solely on conversations in a tactile sense (Nuccio & granda, 2013a). It is important to note that not all DeafBlind individuals use Pro-Tactile. As Nuccio and granda (2013a) mentioned in their series of video logs, DeafBlind individuals value touch to communicate with others and retrieve information. When touch is used for communication and to receive feedback, it makes communication with others feel natural. Therefore, it leads to the “DeafBlind way” (Nuccio & granda, 2013a, 2013c).

Federal Laws

Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act (ADA) of 1990 prohibits discrimination of an individual on the basis of disability (U.S. Department of Education, Office for Civil Rights, 2011). Therefore, more and more students with disabilities are continuing their education at vocational and career schools,

two and four year colleges, and universities (Arndt, 2010; U.S. Department of Education, Office for Civil Rights, 2011). This increase means that postsecondary schools must provide reasonable accommodations in academic settings and not discriminate students who have a disability (U.S. Department of Education, Office for Civil Rights, 2011). A university in the Northeast region of the United States that serves primarily Deaf or hard of hearing students also includes a fair number of DeafBlind students. In the last eight years (2009-2015), the number of DeafBlind students has been consistent at about 25, which is 92% of Deaf students who have some form of vision loss (L. Buchko, personal communication, March 17, 2015).

As the number of students who are DeafBlind increases and plan to attend college or university, they need to understand what support services they will need for academic achievement, independence, transportation, and social support to make their college life successful (Arndt, 2010; Ingraham, 2007). While college life is rewarding and challenging for any students, it brings more challenges and barriers for students who are DeafBlind. As mentioned earlier, there is limited research about the experiences of this small population who attend higher education. These individuals need to be assured that they receive appropriate support systems to engage in college life and make positive adjustments to access academic and social opportunities.

Research Questions

This study focused on discovering experiences and perspectives of DeafBlind college students, as well as understanding the significant challenges they face at a sighted college. Here the research focus becomes if DeafBlind college students receive appropriate support services that include access to a visual and tactile language, will they be able to achieve their academic needs, have meaningful interactions with peers, staff, and faculty members, and participate in on and off campus activities and events. The research questions investigated three areas:

1. What types of experiences do DeafBlind college students have at a sighted college when they navigate their way to access education and social opportunities?
2. Do DeafBlind college students feel that their educational experiences meet their academic, social, and emotional needs at a college that is primarily accessible for sighted Deaf students?
3. What types of coping strategies do DeafBlind college students use with academics, independence, social life, and college life?

Method

Participants

Setting. This study took place at a federally chartered bilingual and bicultural private university in a large metropolitan city in the Northeast region of the United States. Approximately 2000 sighted undergraduate and graduate students were either Deaf or hard-of-hearing. While there is no formal count of DeafBlind students, the Office for Students with Disabilities received an average of sixty DeafBlind students between the years 2007-2008 and 2013-2014; however since 2008, an average of 25 (+/-2) students with vision loss were seen (J. Shaumeyer, personal communication, February 6, 2015). ASL was the primary mode of communication and instruction on campus and in classrooms with students, faculty members, and staff.

Recruitment and Sampling Strategy. Participants were recruited by theoretical sampling in two ways: online announcements through a daily newsletter and flyers at the university. Participants were required to self-identify as DeafBlind, were either undergraduate or graduate students, and currently attended the university. Attempts were made to recruit a diverse sample that was representative of the population.

Participants. The sample included two international students from the university. Due to the richness of the data in this qualitative study, only two participants were chosen. Names of all participants were changed throughout the study to maintain respondents' confidentiality; therefore pseudonyms were Robert and Michelle. Participants' demographic information was obtained prior to the interviews to get a sense of their background and establish a rapport. While Robert used VASL and Michelle used TASL, they both sat in close proximity in front of the researcher who used a smaller space (e.g., upper chest location and not below the waist) and modified signs that were in an out-of-range location (e.g. signs on the leg). A summary of participants' background is shown in Table 1.

Table 1. *Demographic Information of Participants*

Background Information	Participant #1 "Robert"	Participant #2 "Michelle"
Gender	Male	Female
Age	34	25
Hometown	Canada	Netherlands
School Residence	On campus dorm	Off campus apartment
Student Status	Undergraduate, junior transfer	Graduate, first year
Major	ASL or Deaf Studies; undeclared	Mental Health Counseling
Hearing Diagnosis & Cause	Profoundly Deaf Meningitis	Profoundly Deaf Usher syndrome (type one)
Age of Hearing Diagnosis	~ Age 3	~ Age 1.5
Vision Diagnosis & Cause	Dry eyes disease	Usher syndrome (type one)
Age of Vision Diagnosis	At birth - < 3 years old	~ Age 6
Range of Vision Acuity	Severe	Severe
Communication modality	Expressive: Visual ASL Receptive: Visual ASL, close-vision	Expressive: Visual ASL Receptive: Tactile ASL, close vision
Accommodations	Close-vision interpreters (CDIs) Large print text	Tactile interpreters (CDIs) Large print text

	Notetakers Tutors Support Service Providers (SSPs)	Notetakers (sporadic)
Assistive Devices Used	None	Hearing aid, cochlear implant White cane

Materials and Data Collection

Data was triangulated and collected from three types of materials; demographic questionnaires, interview responses, and informal participant observations. All data was documented, reviewed, and analyzed by hand on the researcher’s personal MacBook Pro using Microsoft Word and Excel documents, and an Apple software, iMovie, to record the interviews.

Demographic Questionnaires. Participants completed a brief demographic questionnaire prior to the interview that consisted of 24 close-ended, structured, and multiple-choice questions that asked about participants’ personal background. The questionnaire was pre-submitted to allow participants flexibility to complete. Questions included information to better understand participants’ personal background (e.g., age, gender, birthdate, class year, ethnicity, race), degrees of hearing and vision loss, age of hearing and vision diagnoses, use of any assistive technology, and communication and language preferences. The questionnaire was formatted in enlarged print using font type, Verdana, since it is larger, clearer, and easier to read than regular fonts such as Times New Roman; a common standard to make print materials accessible for individuals with vision loss.

Interviews. Individual videotaped interviews were held at the university in a private office. A list of interview questions was used to guide the interview, which included general, semi-structured, and open-ended questions with probes that allowed participants to respond freely. Questions asked about their experiences, perspectives, and coping strategies, as to how they navigated their way to access academic and social opportunities at a sighted Deaf college. Follow up questions were sent via email, when needed, for clarification or additional information. The interviews were transcribed from ASL to English and used for data analysis.

Observations. Informal observations also took place at the university in two different classes. Prior permission was obtained from participants and their professors in person and via email. The researcher provided a brief purpose of the observations, which was to observe an undergraduate and graduate class on campus. Thus, maintaining participant confidentiality. What was observed was explained in the data analysis. An observation chart and field notes were used to document what was observed.

Procedures

Informed Consent and Confidentiality. Upon receiving Institutional Review Board (IRB) approval, participants were recruited, selected, and contacted based on meeting the study requirements. They confirmed their participation, were given informed consent and video release forms via electronic mail, and were assured complete confidentiality using codes and pseudonyms prior to the interviews. The videotapes were kept in a secure place until the researcher used them to transcribe, compile, and analyze data. They were destroyed by completely deleting the iMovie files at the completion of the final report, as well as all field notes and documents.

Interviews. On the day of the scheduled interview, specific modifications were considered prior to the interview. The researcher wore a black-colored, solid top that contrasted with the skin color of her hands (e.g., dark top with light skin color; light top with

dark skin color) to allow participants to make the most of their remaining vision to view the researcher's hands. Jewelry such as rings and bracelets were not worn to avoid visual and tactual distractions. In addition, the researcher established how to best communicate with the participants (e.g., VASL in close vision or TASL) and adjusted the seating arrangement. Pro-Tactile was not used with either participant, as it was not requested or used by the participant.

Through the participants' choice of communication, the researcher briefly explained background information such as the purpose of the research study, why they were being interviewed, format of the interview, and length of the interview. The researcher answered any questions and provided bottled water and breaks, as needed. Prior to the interview, participants completed a brief demographic questionnaire (if it was not returned by email) and were provided with a list of general questions to give them the "heads up" of what was going to be asked. The researcher quickly reviewed responses from the questionnaire to get to know the participants.

Throughout the interview, sometimes participants went off point and did not always answer the interview question but their information was important to consider. They were open and shared their personal experiences, as DeafBlind individuals. In addition, the researcher commented or responded to what participants shared several times during the interview to maintain a positive rapport and dialogue. This continued rapport was to show participants her interest and her previous work experiences and familiarity with DeafBlind individuals.

Each individual videotaped interview took approximately two hours. Upon completion of the interview, participants received a \$40 voucher, as compensation, for their time and willingness to share their personal experiences and perspectives. This voucher was supported by a small research grant from the university. The researcher thanked participants for contributing their time out of their busy schedules, informed them about following up with a transcript when completed for verification, and provided them with the option to contact the researcher of any questions.

Data Analytic Plan

Interviews. Despite limited information and research about experiences of DeafBlind college students, an extensive and rich amount of data was collected. For the purpose of this paper, one category, academics, was discussed after the themes were analyzed and categorized. This most important category discussed how participants functioned in school, which also impacted other areas of their college life.

Grounded Theory. The detailed procedure analysis used a grounded theory approach with the emerging design of the method of a constant comparative analysis (CCA) (Fram, 2013). Interview responses were analyzed to determine the core category, identify shared themes, and examine similarities and differences. To discover a theory that was grounded in participants' experiences and perspectives, analysis began with open coding to collect, review, and identify single themes from participants' responses. Second, axial coding was used to review and categorize the interview responses that were influenced by the core category. Third, selective coding was used to develop themes or a theory to build a story from the participants' college perspectives and experiences.

CCA Method. In order to reduce the data and find emerging themes or categories, the CCA method was used to review interview transcripts and analyze participants' responses. After themes were identified, they were connected and compared to determine what was happening within participants' perspectives and experiences.

Observations. As previously mentioned, informal participant observations took place at the university in two of the participants' classes. The researcher was an outsider who observed the interactions and attitudes of students and faculty members, the level of

accessibility that related to instruction, instructional materials, and class participation during discussions. By providing an etic view, field notes and a visual chart documented the number of times participants participated in class, which were used to compare to other students' participation by general observations.

Validation Strategies. To ensure accuracy and consistency of the interview responses, as well as maintain trustworthiness and credibility, member checks were used. The researcher provided participants with the option of reviewing and confirming the English transcripts of their interviews, which was emailed to them when completed. In return, they reviewed, made minor changes, and confirmed that the transcripts provided a correct interpretation of their responses. Member checking also allowed participants to play a role by reviewing a rough draft of their background information in the researcher's draft for verification. The data was also triangulated from multiple sources of information from interviews, informal dialogues, observations, and document reviews, which provided validity to the themes. The responses from the interviews were also compared to other participants' responses to find similarities or differences. In addition, the researcher continued her dialogue with participants after interviews and observations were completed for clarification and additional information due to the short-term contact.

Results

Participant Interviews

CCA Analysis. During the three-step process, which started with open coding, eight common themes from participants' responses were found to explain their experiences and perspectives at a sighted Deaf college. They included support services, accommodations, interactions with students, interactions and support from faculty member, sports, peers, on/off campus activities and events, as well as the campus environment. These interconnecting themes were then reduced during axial coding to identify two larger themes; academics and social. Within the umbrella of academics, themes related to what participants needed to survive the academic world with classes, textbooks, peers/professors, and coping strategies. In the social category, themes related to what happened outside of classes, interactions with peers, availability of close vision/tactile interpreting services, and coping strategies to feel included at a sighted Deaf college. These important themes were then synthesized to determine the core category of "access to information and communication." A visual "fish" diagram in used to summarize the results (see Figure 1).

Open coding consisted of four themes under the umbrella of academics and four under the umbrella of social. Axial coding consisted of two categories; academics and social. The core category "access to information and communication" was determined that related to shared themes found in participants' experiences and perspectives, as DeafBlind college students.

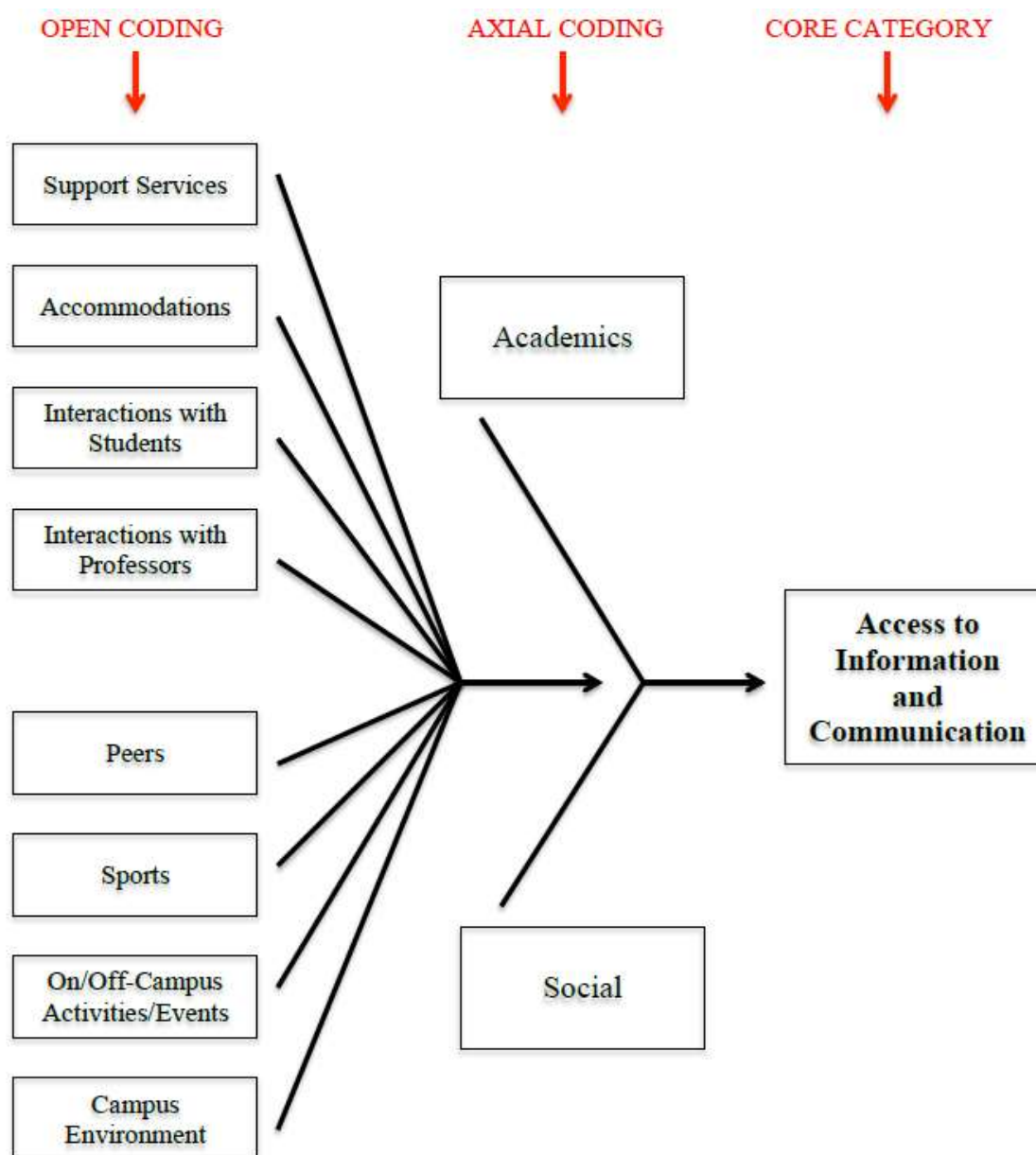


Figure 1: A visual model illustrated data grounded in theory.

Core Category

The core category, “access to information and communication” was mentioned throughout all of the emerging themes that highly impacted participants’ academic experiences at a sighted Deaf college.

Academics. Academics focused on participants’ experiences and perspectives inside the classroom with classes, textbooks, assignments, peers, professors, and how they accessed information. Four themes that mentioned the core category include *support services*, *accommodation*, *interactions with students*, and *interactions and support from faculty members*.

The first theme, *support services*, looked at different types of support services that participants used to support their learning experience, and how they accessed textbooks and instructional materials. Participants reported that the university scanned and converted into computer PDF files most of their textbooks to view in enlarged print (if not available online).

They took responsibility to get any instructional materials in alternate format in advance. Robert began using this service when he started at the university. Michelle did not use it, as an undergraduate student, because she had more vision in the past to be able to access and read her textbooks close-up. However, her textbooks were scanned more often, as a graduate student.

Robert reported needing access to a computer with a large-size monitor to complete his homework or do research. He commented that computer labs on campus either had no large monitors or only one was available, which was not convenient if other students used it. He felt that “they should have more computers to access information visually on a larger screen.” Robert also reported that he received time extensions for assignments and to keep up with his classes, as he felt overwhelmed at times with accessing an extensive amount of information. Michelle reported that she used a magnifying tool with a lamp and a digital magnifier to access and read information. Both participants reported that they did not use any other adaptive technology such as close-circuit television (CCTV), VisioBook, or Braille.

Regarding tutors, Robert reported that he used them. Michelle commented that she did not use tutors. He commented that his experiences were negative. Tutors did not meet his academic needs, as they were students like him. He shared, “I jumped around to different tutors because I was not satisfied and could not find one that worked well for me.” When Robert did find a good tutor with whom he had a good rapport, he was able to access and understand the information from his classes. He suggested that the university needs to use qualified tutors who are teachers or teacher assistants, not students, since he had previously experienced having teachers, as his tutors, at the hearing colleges.

The second theme, *accommodations*, looked at different types of accommodations that participants used to access information and communication in their classes. Participants reported that they used certified Deaf interpreters (CDIs) in their classes and was satisfied with their services. Robert used close vision while Michelle used tactile. The same interpreters were almost always in the same class but were different for other classes. When the regular interpreters were not available, a few substitute CDIs were used. Michelle shared that when she first came to the university, she did not use close vision or tactile interpreters, as she sat close to the front and the classes were small. When she was mainstreamed in high school, she commented, “I was just sitting close to the interpreter in the classroom and by sitting at the front, I thought that was normal...until I entered Gallaudet, I did not know about the distance, far and close.” When her vision changed between high school to being a graduate student, her accommodations changed from using three types of interpreters; regular, close vision, and tactile. Due to Michelle’s progressive vision and using tactile more often, she chose classes that were short in length to accommodate her limited vision, as well as minimize eye fatigue.

Another accommodation that participants used was notetakers. Robert reported that he used them. However, Michelle shared that she did not use them on a regular basis; started using them in graduate school. In contrast to interpreters for their classes, participants were not satisfied with notetakers due to a different and longer process. They learned that student notetakers had to be requested but notetakers needed to be recruited through advertisement, which was time consuming. These paid notetakers were either not reliable or did not take clear notes. Robert shared, “I feel frustrated that the system is different at Gallaudet...should plan in advance with notetakers...or use [reliable] students in class to take notes...or find a professional notetaker.” He coped with this challenge by discussing his concerns with the university to see if services can be improved to allow him to access information more quickly. He also shared his previous college experiences where he took responsibility to request reliable student volunteers who were willing to take notes. Michelle shared similar concerns and found it surprising that students did not really want to take notes; however, when one or two students were willing to take notes, she did not receive them. She eventually let the notetaking situation

go when she realized that she would not read the notes and the textbooks. Michelle mentioned, “once in a while, I may be confused or not understand the information in class then one student would take notes and email it to me.”

The third theme, *interactions with students*, looked at how other students interacted with participants inside and outside of the classroom, and their attitudes toward them. Participants shared positive comments that the majority of students were aware and accepting of DeafBlind students, and were adaptable to their visual and communication needs in the classroom. However, there were a few students who were not as open or sensitive due to lack of knowledge. Robert reported that while the university was a cool place to be where everyone used ASL and a “good starting place to achieve [his] goals,” he shared that some students did not welcome new students in their groups. He learned that he needed to know someone to access a group, and be accepted. On the other hand, Robert shared that there was a group of DeafBlind students who met once a week and went off campus to eat or hang out. In addition, there was a new Pro-Tactile class, which consisted of hearing, Deaf, and DeafBlind students. Students learned how to improve access, communicate, and interact with DeafBlind students. Robert found the Pro-Tactile classes fun and commented, “I can analyze [and understand] myself more” about my visual and communication needs during these classes.

Michelle also shared similar responses about students’ lack of understanding with TASL, since she uses it more often. While she interacted with mostly international students who were aware of her vision changing over the years and using tactile communication, she commented that it was her responsibility to inform students about her need to use TASL, not close vision. She reported, “I have to try and push myself...tell people, I can accept tactile...should not just accept the old way of watching [ASL]...it’s a challenge.” While most students seemed to be okay with using tactile signing with no negativity, she experienced having one or two students who were not comfortable with it. Similarly to the Pro-Tactile class, Michelle also commented that if the university had a “DeafBlind club,” on campus, more students would become more aware and understanding on how to interact and communicate with DeafBlind students.

The last theme, *interactions and support from faculty members*, looked at how faculty members interacted with participants and supported their academic needs in the classroom. Participants shared positive experiences with the majority of faculty members who were aware, understanding, and accommodating. Sometimes, faculty needed to be reminded from time to time about enlarging or posting instructional materials on Blackboard in advance. While Michelle commented that most of the PowerPoint slides (PPTs) were posted on Blackboard for all students, Robert reported, “I tend to ask teachers to email me the PPTs but sometimes, I have to remind them...sometimes, they forget to enlarge the paper.”

Michelle shared that while faculty members provided direct instruction in visual ASL that provided ease of communication for one-to-one interaction, she also needed to take responsibility to teach them about her progressive vision loss and her transition to using tactile. This transition was a challenge at times since not everyone was comfortable with it. For instance, she commented about one of her internships where her supervisor did not use TASL until she brought it up. After her supervisor used TASL for the first time, she was comfortable to use it again with Michelle. Robert found his professors flexible and understanding with giving him time extensions to complete his assignments since he felt “all over the place and overwhelmed” during his first semester, and he struggled with reading due to his limited vision.

Participant Observations

Findings from observations determined that the core category, access to information and communication, was shown through several areas. They included *participants’ level of*

participants, students raising their hands during class, instructional materials, interaction with students, and the use of TASL.

Participants' Level of Participation. While participants had the opportunity to participate in class discussions, their participation level was seen as lower than their sighted Deaf classmates. Robert participated during class discussions approximately 73% of the time while Michelle was at about 45%. Robert was more assertive and commented more, while Michelle was less assertive and less engaged. However, class discussions in both classes were observed as fast-pace. Sighted Deaf students had the freedom to constantly discuss back and forth, and "jump in." Robert's undergraduate class consisted of 17 students who sat in a semi-circle; nine men (including the participant) and eight women. Fourteen students were Deaf, two were hearing (one CODA male student and one hearing female student), and one was DeafBlind (participant). In contrast, Michelle had a much smaller class of 4 graduate students who were all female students; two were Deaf, one was hearing, and one was DeafBlind (participant). Both participants used two CDIs who switched every 15-20 minutes; Robert had two female CDIs, while Michelle had two male CDIs. When the CDIs needed to switch during discussions, Robert's CDIs did not need to pause the class but Michelle's CDIs did since the discussions were fast paced. The core category was seen in these observations with participants' ability to participate and access information with their sighted Deaf peers.

Students Raising Their Hands. Another area that was observed was that participants raised their hands when asking a question or commenting, but the majority of sighted Deaf students did not. It was seen that Robert's professor and teacher's assistant (TA), both Deaf women, raised their hands during a class activity. Each time that Robert raised his hand, the professor was more sensitive, more aware, and acknowledged his input (i.e., by looking at him and raising her hand, as if to signal a pause). Therefore, as a Deaf individual, she had a stronger peripheral view and was more visually aware than Michelle's professor, which was supported by Bavelier, Dye, and Hauser's research (2006). She made sure that he was next to comment. Robert did not have to wait long and the professor did not allow other students to "jump in." By observation, the professor was seen as a moderator, who had control of a large class and encouraged students to raise their hands, despite a lot of chatting. The professor was also observed providing Robert with access to information and communication in a more timely manner. In contrast, Michelle's professor was a hearing woman who did not have a strong peripheral view and overlooked the many times when Michelle raised her hand. Each time that Michelle raised her hand, the professor did not always acknowledge her unless her hand was raised twice. The professor was more of a moderator, not allowing Michelle to participate freely. Students seldom raised their hands when Michelle was commenting.

Instructional Materials. Participants had access to their personal laptops to read PPTs or class documents when needed but a notetaker was not seen being used. Robert had his laptop available to read any documents in large print, but it was not used during this particular class. By observation, Robert and his classmates were given two handouts from the TA for a class activity that was on white paper in regular size font. The handout texts were not in enlarged print. Robert was seen reading the handouts at an extremely close distance and he required more time to read. In Michelle's class, she used a laptop to read PPTs while they were shown to the class on a large TV. The PPTs used a light blue background with black text rather than the standard black background with yellow text for ease of reading. It was observed that Michelle's CDI interpreted the PPTs.

Interaction with Students. In regards to participants' interaction and engagement with students before, during, and after class, it was observed that there was more student engagement amongst sighted Deaf students; little interaction was seen with participants. While Michelle's class was given a five-minute break, she sat alone, and rested her eyes and hands. By

observations, the attitudes of students seemed positive. They treated participants with respect and attempted to include them in class discussions when given the opportunity.

Use of TASL. Last, the use of TASL was observed since Michelle relied on tactile. It was seen that students and professor did not use TASL directly with her. They either communicated through the CDI or used VASL in close proximity. Robert, on the other hand, was observed to approach his professor or classmates in close proximity, and used VASL without the CDI.

Discussion

Core Category

Findings from interviews and participant observations clearly indicated that “access to information and communication” was the core category from emerging themes. Access had a significant impact on DeafBlind college students’ academic experiences and how they navigated through the academic world that related to classes, group discussions, instructional materials, peers, and professors. While they strived to receive the same academic opportunities, as their sighted Deaf peers, they required different levels of access and support to function academically at a sighted Deaf college. In fact, they were a hidden minority within a minority group, and were not recognized by the Deaf community in general. Access to information and communication was the defining core category to survive not only academics, but also to achieve personal independence and involvement at a sighted Deaf college.

Choosing a Sighted Deaf College

Despite participants’ positive and negative academic experiences with attending a sighted Deaf college, they chose to be in an environment where VASL was used; something that the majority of sighted hearing colleges do not provide. However, DeafBlind students had additional opportunities to attend college due to support services, increased awareness, and federal laws that support them (Arndt, 2011, 2010). While participants did not access information and communication the same way as sighted Deaf students, they were resilient individuals who learned to accommodate their visual and communication needs, and make adjustments with their progressive vision loss. Even though it was found that they could communicate using VASL in close proximity, which minimized some communication barriers, it was not adequate to access complete visual and linguistic information. However, students and faculty members were not always aware or comfortable with using close vision and TASL. These participants were young adults who were just beginning their journey, not only with academics, but also with other aspects of their college and personal life.

Access to communication via close vision or TASL, was critical to access information about what was happening at a sighted Deaf college that related to participants’ academic themes. Access was a privilege that the majority of DeafBlind college students did not have unless they had direct access to close vision and tactile communication to retrieve information, as well as enlarged print. Since they relied on additional modes of learning and communication to interact with others and access opportunities on campus, their paths differed from the majority of sighted Deaf individuals. Aitken, Buuljens, Clark, Eyre, and Pease (2000) supported these findings that “deafblindness significantly affects access to information and engagement with people and things in the environment” (p. 14; as cited in Arndt, 2010).

Access with Pro-Tactile

With the emergence of the new social movement of Pro-Tactile in 2012, DeafBlind individuals now have the opportunity to access more visual and linguistic information, and have natural connections during conversations and interactions with others (Edwards, 2014; Pope & Collins, 2014). They rely on the power of touch to tactually access information, and understand communication interactions with any residual vision and hearing they have (MN DeafBlind Technical Assistance Project, n.d.). When provided with tactile feedback and cues, they can access critical information about what other individuals are thinking, or how they are responding and listening, and what is going on around them (Nuccio & granda, 2013a). Pro-Tactile is the breakthrough that provides the majority of DeafBlind individuals with access to immediate and inclusive information regarding discussions and interactions with others (Nuccio & granda, 2013a). If Pro-Tactile is used at a sighted Deaf college, which has been proposed by several individuals on campus, students and faculty members can provide equal access for DeafBlind students, as well as their sighted peers. Pro-Tactile benefits everyone on campus not just DeafBlind individuals, which creates a more welcoming, positive, natural learning environment. By emphasizing the importance of access that was shown in multiple statements, it supports the rich “voices” and “hands” of participants’ experiences of the critical need to provide more access and accommodations on campus.

Accommodation Differences

Despite limited research about DeafBlind individuals who are a low incidence group (U.S. Department of Education and Office of Special Education Programs, 2011), and attend a sighted Deaf college, the literature review provided an etic (outside) perspective about DeafBlind individuals. This perspective provides their challenges with communication, language, and the ability to tactually connect to the world around them (Miles, 2008; Sense, 2015). However, as the number of DeafBlind students increases and include plans to attend college or university, the need to provide high quality academic support services and accommodations will become more critical for these DeafBlind students to be able to survive college life (Arndt, 2010; Ingraham, 2007). Results from multiple sources of data provided an emic (inside) perspective for DeafBlind college students to be “heard and seen” at a sighted Deaf college.

As mentioned earlier, the university was a strongly sighted and visual environment in which the majority of accommodations and support services for DeafBlind students used were not always effective. Therefore, the use of VASL interpreters, as a primary accommodation, was not sufficient to meet their visual and communication needs. DeafBlind students needed a second level of support services and accommodations that differed from what the majority of sighted Deaf students used. They were a unique group of experts in knowing which type of support and accommodation worked well for them (Arndt, 2010). However, this similar comparison can be made to students whose first language was not English when they attended an English-speaking school; yet a translator was needed to access information. Findings supported the proposal that if DeafBlind college students received appropriate support services and accommodations in their mode of communication to access information, they were able to achieve their academic needs, and have meaningful interactions with peers, staff, and faculty members.

Insights

By keeping in mind the heterogeneity of the DeafBlind population who are an under-explored group (Miller & Hodges, 2005; as cited in Kamenopoulou, 2012), different coping strategies and insights supported the findings and core category. While participants required ongoing access to information and communication in all aspects of college life, not only academics, they had the additional challenge to be aware of their vision changes through different stages of life, advocating for themselves regarding what they needed, and the right to be “seen” in a sighted Deaf college. Participants shared the need to be more assertive by telling people to use close vision or TASL, creating a support system of friends who were sensitive and understanding, being familiar with how the system works, knowing what is available, asking people for help, accept help when offered, and disclosing that you are DeafBlind.

In addition, several other DeafBlind individuals experienced similar challenges as participants, which were the lack of a DeafBlind friendly and inclusive academic environment, others not being comfortable with using TASL and Pro-Tactile, and not being recognized as still Deaf but with limited vision. These adjustments were often life changing for DeafBlind individuals who attempted to fit in a sighted Deaf college that was not catered specifically to their visual and communication needs. However, they rated their academic experiences as a seven out of ten (1 being poor to 10 being excellent) due to being satisfied with CDIs who provided access to communication and information in classes, and ASL being used by the majority of individuals on campus.

One insight from observations was noticing how a DeafBlind student using a CDI in a sighted Deaf class was compared to as Deaf student in a mainstream program using an interpreter in a hearing class. Fast-pace class discussions had few pauses to allow the DeafBlind student to “jump in” despite a few seconds time lag with CDIs. Faculty members needed to moderate future classes effectively and provide DeafBlind students equal opportunity to participate than wait. Another insight was the hearing status and peripheral view of faculty members despite the class size. A Deaf professor was seen as having a wider view, as opposed to a hearing professor, to capture what went on around them such as a student’s raised hand from the side and making acknowledgments than have the participant wait. These brief findings supported the core category that access impacted participants’ academic experiences.

Additional insights from document reviews indicated that more off-campus events provided accommodations than on-campus. Examples included town hall meetings, museum visits, and yoga sessions. While assumptions were made, faculty members and student organizations were not always sensitive to, nor did they plan to have different types of accommodations available or provided upon request for DeafBlind students. While the majority of university events were conducted in ASL or provided with ASL interpreters, as it was a sighted Deaf college, participants validated their perspective that the university should not assume that everyone uses VASL and can view flyers in regular print. All announcements should specify that all accommodations (i.e., close vision and tactile interpreting) were provided or available upon request, as well as provide descriptions of any flyers than opening another link. If sighted Deaf students can attend any event on their own terms, DeafBlind students want to do the same; however they feel that it is unfair when they need to attend a last minute event that is school-related and is not well planned by the organizer to include DeafBlind individuals.

Implications

As mentioned earlier, access to information and communication was the core category for DeafBlind college students to achieve academic opportunities at a sighted Deaf college.

This study confirmed that they were “hidden” within a minority group in a sighted Deaf environment; therefore it was important to provide appropriate and specialized support services and accommodations (Arndt, 2010; Arndt, 2011). Since they cannot access the same level of accommodations as sighted Deaf students, colleges and universities can effectively support DeafBlind students academically by having knowledgeable and trained DeafBlind specialists. These specialists have expertise in this low incidence group, and are aware of different types of academic support and adaptive technology resources. Asking DeafBlind college students what they needed to function academically is the best route, as there are varying visual and communication needs. Arndt (2010) commented that the challenge was to implement strategies that supported both DeafBlind college students and the university setting; therefore being assertive to advocate for themselves was critical.

In addition, professionals and educators will need to work with families of DeafBlind children during transition planning to adjust from high school to post-secondary education. Transition planning can better prepare DeafBlind students on what academic support they need, what to expect at a sighted Deaf or hearing college or university, and to connect with DeafBlind students for mentoring experiences. Being knowledgeable and familiar with how they best access information and communication would also ensure academic achievement.

While the majority of sighted Deaf students attended the university, it can become a DeafBlind friendly and inclusive environment by understanding and being aware of the visual and communication challenges of DeafBlind students with a positive attitude. Participants shared several suggestions to minimize the barriers. First, everyone on campus should be familiar with tactile signing and Pro-Tactile. Second, there is a need to have more DeafBlind role models or leaders on campus who were in mid- to senior management positions. Third, adjustable lighting needs to be provided in the classrooms, as different DeafBlind students have different visual needs. Fourth, social opportunities can be improved if Deaf students welcome and include more DeafBlind students in groups. Fifth, interpreting, notetaking, and tutoring services can be improved and increased to meet the needs of DeafBlind students. Lastly, there is a need to provide in-service training/workshops for both students and faculty members to learn how to positively interact and communicate with DeafBlind students. That way, all DeafBlind students can access information and communication similarly to their sighted Deaf peers.

Limitations

Due to the small sample size of two, it was not representative of all DeafBlind college students at the university; therefore these results might not apply to all DeafBlind students especially if one attended a sighted hearing college or university where ASL was not used. However, participants attended a sighted Deaf college due to direct instruction and communication in ASL, and Deaf culture since they were Deaf first and became Blind later in life (i.e., Usher syndrome). In contrast, there may be some DeafBlind individuals who were not part of the Deaf community or who used different communication modalities such as spoken language, but not ASL.

Future Research

Additional research is needed to investigate DeafBlind students who attend a sighted hearing college or university, as well as colleges and universities with large numbers of Deaf students such as National Technical Institute for the Deaf at Rochester Institute of Technology (NTID/RIT) and SouthWest Collegiate Institute for the Deaf (SWCID). Comparing

participants from different colleges/universities would determine similarities and differences among post-secondary populations.

Due to the large amount of data found from interviews, observations, and other sources, additional areas of concerns (i.e., social) were identified that need to be researched further. Additional data could be obtained from DeafBlind students' family members, peers, and professors to get a comprehensive picture. Employing a mixed method design that included surveys would provide a detailed and holistic picture of DeafBlind college students' experiences and perspectives at both sighted hearing and sighted Deaf colleges or universities. Future research can also explore DeafBlind students who are in high school to learn about their transition experiences to college or university. These future research opportunities can better understand DeafBlind students' visual and communication needs, their experiences and perspectives with accessing information and communication, and provide pertinent information to high schools, colleges, and universities who serve DeafBlind students, as well as their families.

Conclusion

In conclusion, the results demonstrated the importance of access to information and communication for DeafBlind college students, to gain academic opportunities at a sighted Deaf college. If DeafBlind college students are provided with full access just like their sighted Deaf peers, they can have more positive, rewarding, and inclusive learning experiences. By providing access and using Pro-Tactile, they would feel less isolated, more engaged, and respected, as capable and autonomous individuals who can be part of a sighted Deaf college environment and the Deaf community. These findings and insights also provided new DeafBlind students, who plan to attend college, with a better understanding of what to expect at a sighted Deaf college. To survive being at a sighted Deaf college, they needed to be in an inclusive and supportive academic environment that was DeafBlind friendly with appropriate accommodations. To empower DeafBlind individuals, "DeafBlind people can DO anything except hear and see, using touch and their intelligence, when they are given access" (Nuccio & granda, n.d.; as cited in Pope & Collins, 2014: PowerPoint slide p. 16).

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The author wants to thank participants for sharing their experiences and insights. This manuscript was originally developed in a research class at Gallaudet University and revised in a "Writing for Publication" seminar at Lamar University. A special thank you and appreciation to M. Diane Clark for her mentorship, guidance, and support, as well as the author's colleagues for their peer reviews.

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Article Citation

Wolsey, J. A. (2017). Perspectives and experiences of deafblind college students. *The Qualitative Report, 22*(8), 2066-2089. Retrieved from <http://nsuworks.nova.edu/tqr/vol22/iss8/1>
