Navigating the Unseen: A Case Study of Vision-Impaired Doctoral Students' Experiences with Qualitative Data Analysis Coding

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Abstract

This case study explores the unique lived experiences of visually impaired doctoral students (VIDS) as they engage in the complex process of qualitative data analysis research coding, highlighting the need for customized approaches rather than relying solely on institutional accommodations. While technological advancements and institutional policies, such as the Americans with Disabilities Act (ADA), which helped improved access for students with disabilities; visually impaired students continue to face distinct challenges that require highly individualized solutions. This study focuses on three visually impaired doctoral students who reflect on their experiences with qualitative data analysis research coding. Through a phenomenological lens, the research emphasizes the resilience, adaptability, and innovation these students employed to overcome barriers in the academic qualitative data analysis research coding process. The findings underscore the importance of recognizing the diversity of disability experiences and the necessity of flexible, student-centered support systems that empower individuals to develop strategies tailored to their specific disability needs.

Keywords: visual impairment, doctoral students, qualitative coding, case study, accessibility, resilience, adaptability

Introduction

Visually impaired doctoral students (VIDS) face distinctive challenges in conducting qualitative research, particularly in data-analysis coding, which traditionally relies on visual interaction with textual data. Data analysis coding requires researchers to identify, organize, and interpret themes from large volumes of data (Moustaka, 1994; Charmaz, 2015), an inherently visual task that presents unique obstacles for students with visual impairments. These challenges often require visually impaired students to develop customized strategies that cater to their individual needs and abilities, resulting in a highly personalized and adaptive approach.

While some tools and accommodations exist, the highly individualized nature of visual impairment means there is no one-size-fits-all solution. Each student's experience is shaped by the specifics of their impairment, their previous experience with research, and the resources available to them. As a result, visually impaired students often need to experiment with various approaches to find what works best for them, from using text-to-speech software and dictation tools to creating alternative methods for tracking and analyzing data.

This study explores the lived experiences of visually impaired doctoral students as they navigate the qualitative data analysis coding process with a focus on the uniqueness of their disability and the customized approaches they develop to overcome challenges. Rather than emphasizing the need for broad institutional accommodations, the research highlights how students with visual impairments draw on resilience, adaptability, and personal ingenuity to succeed. The process of adaptation is a key theme, with each student finding ways to work around traditional methods and create solutions tailored to their own abilities.

By showcasing these individual stories, the researchers emphasized the importance of recognizing the diversity of experiences within the visually impaired community. The case

studies underscore that no two students experience their impairment in the same way, so their solutions and strategies must be as unique as they are. This perspective encourages a more flexible, student-centered approach to research, focusing on empowering students to find what works best for them rather than relying solely on institutional accommodations.

Literature Review

This case study aims to illustrate from a phenomenological perspective the complexity of the experience of doctoral students who are vision impaired. The researchers are visually impaired and reflect on their experience completing qualitative data analysis coding. There is a void in the literature about the academic experiences of Visually Impaired Person (VIP) research students regarding engaging in research activities such data analysis. The intention of developing knowledgeable scholars who research complex problems to build new theories to solve those problems tends to be idealistic, as a lack of the human ability to access uncollected and firsthand qualitative data analysis coding may place this population at a disadvantage. This case study presents the background of the study, a discussion of visual impairment and blindness, related literature, methodology, findings, and practical applied implications.

Technological advances (Zorec et al., 2024) and the Americans with Disability Act (ADA, 1990; ADAA,2008) have been pivotal in increasing the number of students with disabilities in doctoral programs. However, reports of higher dropout rates than non-peers without disabilities, with 20% in undergraduate to 2.1% in graduate school, suggesting serious barriers that need to be addressed (Bellacicco & Parisi, 2021; National Center for Education Statistic, 2023). Visual impairment is an invisible disability that impacts students' success in a CACREP program, especially qualitative data-analysis research coding. Many individuals are not aware of the multiple disabilities impacting visual impairment performance in academic

settings. Due to the misconceptions and stigma surrounding doctoral students with visual impairment, these groups are facing limitations and barriers in their professional development. Despite the disadvantages, students with disabilities demonstrate resilience, self-efficacy, and motivation to overcome personal and academic challenges (Ganguly, 2019). A disability does not limit potential, but the perceived stigma and bias within the educational institution, faculty, and peers may create unnecessary challenges (O'Shea & Meyer, 2016).

A visual impairment is defined as any loss in functional performance concerning visual acuity or visual fields (WHO, 2023). The specific aspects of visual impairment in education are termed dual sensory loss, conventionally determined through measurement: moderate to severe impairment is defined as any loss of acuity or field in either eye that falls under the two visual acuity categories. The effect of the visual impairment is measured in three categories: non-severely sight impaired, severe sight impaired, and sight impaired (ADA, 1990; WHO 2023). We believe that hearing impairment is closer to disability than visual impairment; while most discriminative or compulsory regulations about the public realm relate to hearing, visual impairment is recognized by society, and visual impairment is a significant disability organized within the global urban system, which is specified by public transportation (Ashena et al., 2020; Demmin & Silverstein, 2020).

Multicultural competencies are a widespread research theme in CACREP standards and the American Counseling Association (ACA) [ACA, 2014]. The gap is significant in applying inclusion, accessibility, and accommodation (Brooks et al., 2015; CACREP, 2016, 2024; White et al., 2024). Therefore, this study aims to explore the lived experiences of three VIP students in a doctoral program conducting qualitative data analysis coding.

Purpose

The purpose of this study is to explore the way that vision-impaired doctoral students experience and overcome qualitative data analysis coding. What distinguished this study from other studies of disabled postgraduate students is the data-analysis codes of the texts for the phenomenological themes rather than general patterns. The phenomenological nature of the case study will take the reader into the participants' lived experience. The case study provided information about the lived experiences of visually impaired students in doctoral programs while conducting data analysis coding in research. The research gave voice to invisible disabilities such as visual impairment creating awareness of institutions, faculty, and peers, hoping to remove barriers to accessibility and accommodations. In summary, this research aims to create an environment that includes social justice and advocacy for visually impaired doctorate students conducting qualitative data analysis coding.

Research Design and Methodology

The authors adhered to established qualitative research practices in this study (Hayes, 2013; Moustaka, 1994). The upcoming paragraphs will provide a detailed explanation of the research methods, researcher role, setting and participation, data collection, and data analysis.

Methods

A qualitative research methodology generates new insights and discovery of data by providing a process and understanding of context (Hayes, 2013) such as narratives, stories, and conversations, giving a voice of justice to the experiences of research participants (Moustakas, 1994). Furthermore, qualitative research design studies perspectives, complexity, and quality rather than the quantity of the data analyzed (Moustaka, 1994). This case study explores the complexities and nuances in depth by focusing on understanding real-world context (Dahwa,

2024) and eliminating roadblocks to lack of clarity and distinction in the phenomenon (Nair et al., 2023).

The Researcher's Role

The researcher or investigator is a critical part of the analysis process – shaping the study and playing a pivotal role in data analysis and, as such, contributing to the overall end-product of the research (Strauss & Corbin, 2014). The researchers have experienced firsthand the disadvantages of VIP and inequalities in multicultural competencies and disability competencies specifically. Therefore, the researchers bracketed personal world views and biases to stay neutral and objective, handling data analysis and coding with integrity and trustworthiness. The means of transferability, credibility, and dependability were exercised during the data collection.

Setting and Participants

The case study was conducted via the Microsoft Teams platform with participants from a University in the Southern Region of the United States in an online qualitative research class. The participants in the study were 18 years or older, currently enrolled in a CACREP-accredited doctoral program, and have some form of visual impairment. Purposive sampling was utilized to require participants familiar with the phenomenon (Charmaz & Thornberg, 2021). A small sample allows the opportunity to extract the essence of the participants' experiences (Hays & Singh, 2011).

Data Collection

The data collection methods used to generate a rich description of the phenomenon. The case study allowed a discovery in complex, phenomenological studies (Charma, 2020; Creswell, 2014; Dahwa, 2024; Nair et al., 2023) with few participants. As the participants in this study were also the researcher's, informed consent is assumed, and pseudonyms are deemed

unnecessary. Each participant was to write reflective memos during their qualitative research course. Each participant was provided with a data manuscript to analyze and find emerging themes; because each participant had unique VIP challenges, they provided a reflective memo to convey their qualitative data analysis coding experience.

Procedure

This study contains three participants and corresponding case studies. Each case study involves the phenomenology of each participant. The participants were also the authors, and everyone's phenomenology of engaging with the qualitative data analysis coding process is unique. The uniqueness of the experience for each participant fitted a model of reflexivity for the participants rather than a typical case study model. Each participant presented their own experience from a first-person perspective. It was important to note that each participant was paired with another fully sighted student during their qualitative data analysis coding. All students in this class are experienced counselors with existing multicultural competencies interacting with individuals who have some form of disability. It is the position of these authors that disability is so unique to the individual that even fellow counselors with multicultural competencies with disability focused cannot fully understand the phenomenology involved. The uniqueness of this individual's impact necessitates using personal reflection for these case studies. The following is the case study by personal reflection from each participant.

Case Study 1 / Personal Reflection

Although this was a challenging project, I did have the advantage of prior coding experience. I realized things about this process did not work well for VIP, so I tried to approach this project differently from the beginning. Adapting to disability often involves trial and error, some of which had been experienced in my previous coding experience. I already knew, for

example, that color highlights were not beneficial. I had to find another way. Two codes from my researcher memo were trial and error and adaptability. These are the primary ways we develop resiliency and succeed as VIPs.

One form of adapting was immersion in the transcript. I rely on text-to-speech software (VoiceOver [VO] in this case) to read documents, so I started using VO to listen to the full transcript. We had received permission to have the audio portion of the interview, so I listened to this next. The next step was to hear as VO reread the text. This process was necessary to gain the required comprehension of the material. Comprehension is more challenging when reading auditorily than when I used to read visually, so I need to engage with the material more extensively to gain similar comprehension. This means that reading is a much more time-consuming process than it used to be. Subsequently, the primary code that emerged from my researcher memo was time-consuming, with prioritization also being a critical code. Because there is limited time, we always choose what is essential and what is not. As I continued through this immersive analysis, I learned this fits within a hermeneutic phenomenological approach to qualitative study (van Manen, 2016).

Case Study 2 / Personal Reflection

The following paragraph narrates my experience challenges with the interaction of qualitative research data coding. For starters I was not aware that my physical disabilities intersected with Visual Impairment. I was ignorant of the term Visually impaired and what it meant; furthermore, that I was VIP. However, I struggled with eyesight in everyday life and found ways to adapt. I avoid long periods of screen time, use dark mode screens, enlarging data, and use reader and dictation. My first set of codes emerged from listening to transcripts and writing in a word documents. As a VIP I have learned to compensate for my eyesight, which is

drawing what I listen to in my brain. After that, I listened to the code and immersed myself in finding the themes. I realized the challenges of writing specific themes on a sheet of paper as my peers. I knew that I had to listen and then dictate my findings in a word document. This type of coding made it difficult to provide a data auditor to track the codes into the themes selected. Despite the challenge I was able to complete the qualitative research coding assignment, however there is a process of trial and error and flexibility to accommodate and compensate for the Visual Impairment. I have recognized that there is motivation and resilience as a VIP despite the challenges, it is about learning how to engage with everyday life with limited eyesight.

Case Study 3 / Personal Reflection

Growing up with a progressive visual impairment, I have had to learn to be flexible and adaptive. In a previous degree, I could do some coding; however, I was seeing a little more than I do now. Therefore, I used colored paper to write different parts of the transcripts and see commonalities. However, today, this process will not work. I have almost lost complete sight in one eye, and the other one was 20/400, which means I am legally blind. My condition is in my optic nerve, which means anxiety exacerbates the only eye that is working "well" at the current time. Lastly, I am colored blind, which means more adaptation and flexibility.

As I started to think of coding, I realized I was already anxious and frustrated with how I was expected to highlight the transcripts, which had not been feasible for me for years. Therefore, I put that aside and immersed myself in the recordings, which we were allowed to get as accommodation. The immersion of the recording allowed me to pick up themes and write extra-large on a whiteboard that I kept on the wall of my office. As I wrote the codes, I then noticed common themes. I was happy to show some visuals to those who needed it. My partner wanted more; however, this is all I can provide. When I shared my findings, I was told that I had

to make notes in the actual transcript to have a data auditor audit my themes. The typical data coding process frustrates me as making track changes in a Word document is time-consuming and exhausting for VIPs. I did attempt to go back to the transcript, with the codes on the whiteboard, and made some new notes in the transcript. Adaptation and flexibility are key for coding; I also know it is key to visual impairment. I feel blessed that my body and brain have adapted themselves to be able to assimilate and work well with auditory recordings and transcripts.

Data Analysis

Case study data analysis began with a systematic description of social interaction, themes, and proceeds by investigating how these social actions are related to one another (Charmaz, 2015; Dahwa, 2024; Nair et al., 2023). In the research project, data analysis was conducted concurrently with data collection to provide a constant comparison of the data. The data analysis examined the reflection memos of three doctoral students and their experience with data analysis coding of qualitative study. Each participant documented a reflective memos during their qualitative data analysis coding experience to uncover their challenges and success within the execution of data analysis coding. The reflective memos were broken into codes and subcategories to identify the language, ideas, and themes. Once the themes were identified, the members check-in to ensure the study's trustworthiness. The emerging themes and subthemes were *Accommodation and Accessibility, Resilience, Uncomfortable Emotions, and Intersectionality.* The following paragraphs will provide results and a discussion of the findings. See table Figure to illustrate the common themes among the participants.

Table 1. Participants common themes

Discussion

This study's findings provide critical insights into the challenges, strategies, and lived experiences of visually impaired doctoral students engaging in qualitative data analysis coding. These results highlight the essential role that appropriate accommodations and institutional support play in helping these students succeed, particularly in the demanding environment of doctoral research. The results also underline the complexity of visual impairment as an academic and professional challenge, compounded by a lack of awareness and understanding among peers, faculty, and institutions.

One of the most significant emerging themes in this study is the clear need for creating reasonable and accessible accommodations throughout a visually impaired student's academic journey. Without these accommodations, visually impaired students may face insurmountable obstacles, particularly when completing assignments requiring intensive text interaction, such as qualitative research data analysis coding. The participants in the study each described how traditional approaches to data analysis coding such as reading and highlighting transcripts, making annotations, and using color-coded systems which are not feasible for those with visual impairments. Data analysis coding becomes inefficient, frustrating, and time-consuming without accommodations like text-to-speech technology, larger screen displays, or other assistive tools. As such, the study calls for increased awareness of the needs of visually impaired students, particularly those in research-intensive programs.

A common theme across all three case studies was the considerable extra time required for visually impaired students to complete coding tasks compared to their fully sighted peers. The participants expressed that they needed to engage more deeply with the material to achieve the same level of comprehension and analysis. For example, one participant mentioned listening

to transcripts multiple times using text-to-speech software, then re-listening to the original audio files to ensure they grasped the whole meaning of the data. This process is more time-consuming and requires a higher degree of mental focus and concentration, which can lead to fatigue. For these students, qualitative data analysis is a matter of intellectual engagement and physical and cognitive endurance. It was noted that the time-intensive nature of their work often led to the prioritization of tasks, with some aspects of data analysis coding receiving more attention than others. Participants expressed that their limited time and energy required them to make difficult choices about which elements of the data analysis coding process were most essential, reflecting an adaptive and strategic approach to their work. The necessity of such time-consuming processes underscores the importance of providing flexible deadlines and workload accommodations to ensure visually impaired students can produce high-quality academic work without sacrificing their well-being.

Another key theme relates to the challenges visually impaired students face when collaborating with sighted peers or when attempting to document their coding processes for external review. One participant expressed frustration with the expectation to make trackable changes in a Word document, which is the standard practice for providing a trail of one's data analysis coding decisions. Due to the time-consuming nature of visually impaired coding methods, maintaining such a record is particularly difficult, often leading to incomplete or disorganized audit trails.

The study also highlighted the complexity of visual impairment as a disability often intersecting with other physical, sensory, or cognitive challenges. For example, one participant noted they had additional disabilities beyond visual impairment, including physical limitations, which further complicated the process of conducting qualitative data analysis coding. The

intersectionality of these disabilities created a compounded set of challenges that required even greater levels of adaptation and flexibility.

Throughout the analysis, key themes such as resilience with subthemes of flexibility, motivation, and advocacy emerged as central to the participants' experiences. Flexibility was a critical factor in navigating the academic challenges posed by visual impairment, both in terms of personal strategies and institutional accommodations. The participants consistently demonstrated high motivation to overcome barriers and succeed in their academic endeavors, underscoring the importance of resilience in the face of adversity.

The study also highlighted the need for advocacy at both the individual and institutional levels. Participants expressed a desire for greater awareness and understanding of the unique challenges visually impaired students face. They advocated for changes in the way institutions approach disability accommodations, calling for more proactive rather than reactive support systems. This advocacy extends to creating a culture of inclusivity that goes beyond compliance with legal standards, aiming to foster an environment where visually impaired students can thrive without being marginalized or stigmatized.

Implications

The findings from this study offer significant implications for educators, academic institutions, and policymakers when considering support for visually impaired doctoral students. First and foremost, the study challenges the notion that standardized accommodations are sufficient to meet the diverse needs of students with visual impairments. The uniqueness of everyone's experience with visual impairment necessitates a customized, flexible approach to academic support. Institutions must move beyond rigid policies and generic accommodations to

provide a more personalized and student-centered approach, empowering students to identify and implement strategies that work best for their unique circumstances.

For educators, this means fostering open communication with visually impaired students and being receptive to adjustments in instructional design, assessment methods, and research activities. Faculty members should be trained to recognize the diversity of disability experiences and be equipped to collaborate with students in developing individualized strategies that may not fit traditional accommodation models. This can include encouraging the use of assistive technologies, alternative ways of engaging with data, and flexible timelines for completing research-related tasks.

On a broader level, this study suggests that educational policies and frameworks, such as the Offices of Students with Disabilities, while necessary, may not always fully address the needs of visually impaired students. Policymakers should consider expanding the definition of accommodations to include more personalized solutions that are co-designed with the students. This could involve adjustments to curriculum delivery, research requirements, support services, and a focus on promoting resilience and self-advocacy among students with disabilities.

Ultimately, the research highlights the importance of recognizing that disability is not a one-size-fits-all experience. For visually impaired doctoral students, success in research requires creativity, flexibility, and self-awareness. By shifting from a standardized to a more individualized approach, academic institutions can better support these students in achieving their academic and professional goals.

Conclusion

The results of this case study underscore the importance of providing reasonable accommodation, fostering understanding, and supporting the resilience of visually impaired

doctoral students engaged in qualitative research. The participants' experiences reveal the need for systemic changes in the way institutions approach disability, moving beyond minimal compliance with legal standards to a more comprehensive and inclusive framework. By recognizing the unique challenges posed by visual impairment and providing appropriate support, academic institutions can create a more equitable environment for all students.

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