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RESEARCH PAPER

Experiences of Visually Impaired Researchers in Collecting and Analysing Data of Social Sciences

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ABSTRACT

Research activities require mastery in collecting and analyzing data. Visually impaired researchers pass through a similar process of collecting and analyzing the data. This study aimed to seek the experiences of visually impaired researchers in data collection and analysis in the field of social sciences. This research was qualitative and explanatory. 10 visually impaired researchers made up the study's sample. The purposive sampling was utilized for data collection. Data were gathered using a self-designed semi-structured interview approach by keeping in mind the objectives of the study. The validity of the instrument was assured by expert opinion (N=03). Extensive literature was reviewed to assure the reliability. Thematic analysis was used to examine the data. From the thematic analysis, five main themes were identified: challenges, strategies, ensuring validity & reliability, collaboration, and suitable approaches. The results showed that the majority of participants indicated two common challenges i.e. software compatibility and mobility. This study recommends that higher education commission (H.E.C) of Pakistan should implement a quota system for the publication of visually impaired researchers to promote their research activities without any publication charges.

| **Keywords:** | Data Analysis, Experiences, Higher Education Commission Of Pakistan, Researchers, Visually Impaired |

Introduction

Human involvement occurs in social sciences. Different aspects of human life are addressed in this field. Although social sciences research (SSR) is an enterprise that is constantly changing, there are some serious problems that prevent it from reaching its full potential and utility (Sunday & Chiyem, 2021). Human behavior is extensively and at various levels studied in the social sciences. The goal of social science research is to understand, explain, and ultimately control social behavior (Mor, 2019).

According to Reche and Perfectti (2020), creativity is a scientific skill required to build a successful research career.

Visual impairment (VI) is a serious health problem that has far-reaching effects on a person's psychological, financial, and social well-being on a global scale (Alswailmi, 2018). Additionally, compared to sighted people, researchers who are blind experience more challenges. By its very nature, research is a difficult task that calls for in-depth subject knowledge, careful planning, and diligent work (Qasem & Zayid, 2019).

In order to evaluate outcomes by addressing essential concerns, the data collecting procedure in social science research entails acquiring and evaluating data on specific variables using a properly defined framework. Unstructured interviews and a questionnaire are used to collect data from the study's sample (Vaz, 2020).

Data analysis, on the other hand, is a procedure that entails the molded data being examined for interpretation to discover pertinent data, make recommendations, and support the decision-making process for research problems (Schoonenboom, 2022).

Both processes are difficult for researchers who are blind or visually impaired because they have trouble communicating and cannot visit the locations needed for data collection. They encounter difficulties with data analysis in both qualitative and quantitative research, particularly because visually impaired researchers cannot use the SPSS software; instead, they must rely on their sighted peers. It's still difficult for people with VI to access technology and information (Akcil, 2018; Hollier, 2007; Subaolu & Atayurt Fenge, 2019).

Literature Review

Students with visual impairments in educational institutions have a number of problems and difficulties, which has a negative effect on their academic performance. According to Manitsa (2020) difficulties and emotional problems are encountered mostly by visually impaired students to develop & maintain relationship socially. For students with visual impairments to succeed academically, the design of curriculum and instructional methods must take into account the diverse set of issues and challenges they encounter. Previous studies depicted that poor social interaction and problems behaviours are found among visually impaired individuals as compared to their sighted peers (Ozkubat & Ozdemir, 2015).

Visually impaired students perform poorly academically; they have trouble understanding academic concepts as well as finishing homework and taking exams (Kapur, 2017).

A competent social researcher is grounded in sound methodology and social theory and has a critical awareness of contemporary society and social issues.

A critical understanding of a variety of social research techniques and approaches is necessary for researchers. The engagement in meaningful interaction with others is based on the ability of social competence (Junge et al., 2020).

Researchers use observation, documentation, and interviewing to gather information pertinent to the study's goals (Sugiyono, 2010).

Data collection is inherently fraught with privacy concerns (Lobe, 2017). According to specific reliability and/or validity methodologies, issues of reliability are usually missing, negligible, or unjustified in qualitative leisure research. Instead of prescribing what reliability and/or validity ought to look like, researchers should concentrate on the overall credibility of qualitative research by more directly addressing reliability and/or validity-related issues as they relate to larger issues of ontological, epistemological, and paradigmatic affiliation (Rose & Johnson,2020).

Therefore, it is advised to follow extremely strict ethical guidelines for every study endeavour once the data have been obtained (Andersen &Corneli, 2018).

It is important to be aware that participants must be able to inquire further before giving their consent, and direct email communication can solve this issue (Hewson et al., 2016). By simply disconnecting, participants in focus groups and online interviews can easily withdraw voluntarily. Email can also be used to submit a "debriefing statement" at the conclusion of a session (Hewson et al., 2016).

Both research traditions do not view data analysis as a series of binary oppositions. Data analysis may occasionally combine with qualitative and quantitative methods. As shown (Ngulube, 2015), the methods for qualitative and quantitative data analysis differ.

The visually impaired (VI) community is receiving better and more affordable educational assistance because of technological advancement in general (Ashraf et al., 2016). Despite the fact that many of their educational institutions do not offer computing courses, students demonstrate enthusiasm for computing courses using assistive technology (Ludi & Reichlmayr, 2011). Aziz et al. (2013) contend that computer-based learning programs are not sufficiently well-designed for visually impaired students to learn effectively. As a result, when conducting data analysis, researchers who are visually impaired encounter technology barriers more frequently. The collaboration between therapists, carers, trainers, programmers, and engineers who are involved in the design and development of such devices (technology) for visually impaired researchers is allegedly lacking (Calder, 2010).

Material and Methods

In this qualitative study, the naturalistic approach was used.

Research Design

This was qualitative research and exploratory type of research.

Research Population

The population of the study participants comprised visually impaired researchers from the province of Punjab, who were belong to the field of social sciences.

Sample of the Study

Visually impaired researchers (N = 10) were contemplated as sample for the study related to various educational background and socioeconomic status. The sample belongs to various cities of Punjab i.e. 1 from Muzaffer Garh, 1 from Sargodha, 1 from Bahawalpur,1 from Multan, 2 were from Okara and 4 from Lahore. In this study, purposive sampling was used as sampling technique.

Instrument of the Study

The instrument of the study was the semi structured interview. This was self designed instrument. The primary method of data collection was in-depth interviews from the participants.

Validity and Reliability of the Instrument

The instrument's validity was assured by the experts opinion (N=03). However, an extensive literature review helped the researchers to confirm the reliability of the instrument.

Data Analysis Procedure

The data analysis was done through the process of coding & thematic analysis. There were five major themes which were emerged from relevant categories. The categories contained sub themes including chunks of the participants. Great efforts were made to approach the participants. It took almost three weeks in data collection procedure.

Table 1
Participants' Demographics

Age	Mean= 36.5 (minimum 20, maximum 42)
Education	3 M.A, (30%), 4 M.Phil (40%), 3 Ph.D Scholars (30%)
Division by Level of Visual Impairment	7 low vision (70%), 3 totally blind (30%)

Locality	1 from Muzaffer Garh (10%), 1 from Sargodha (10%), 1 from Bahawalpur (10%),1 from Multan (10%), 2 were from Okara (20%) and 4 from Lahore (40%)

Ethical considerations

The basic element of any research is ensuring ethical consideration. The consent of the participants was taken without any pressure. It was assured to the participants that all the information will be kept confidential and will be used only for the purpose of research. Ethical consideration included the choice based answer by the participants and they were permitted to leave the study at any stage. No necessary secret information was asked by the researchers.

Coding and Thematic Data Analysis

Theme 1: Challenges

This theme has derived from the categories i.e., software's compatibility, and mobility problem. The theme reflects the challenges that visually impaired researchers experience while collecting and analyzing the data. Students with visual impairment are more competent and confident when using cell phones as opposed to laptops and/or desktop computers, especially when mobility is the key requirement (Arslantas & Gul, 2021).

Category 1: Software's Compatibility

Few of the participants reported that non-compatibility of the softwares is major problems for visually impaired researchers while collecting and analyzing the data. Additionally, one of the participants said that

"Jaws and few other software's are not compatible with the screen readers."

Category 2: Mobility Problems

Majority of the participants responded that mobility is the major problem for them while data collection process. These participants stated that their visual impairment becomes hurdle for them to collect data. One of the participants stated that

"I feel much difficulty in mobility during my data collection process."

Theme 2: Strategies

This theme reflects the strategies which visually impaired use to protect their data for confidentiality purpose during data collection process. This theme has been emerged from the categories of password application, independent working, and Google form. All potential personal identifiers must be eliminated in order to guarantee the data confidentiality during research (Lobe et al., 2020).

Category 1: Password Application

Only few of the participants stated that applying of password on the data is a good technique to protect the data. Visually impaired researchers use passwords to protect their data. Additionally, one of the participants said that

"Mostly, I use different passwords for the protection of my data."

Category 2: Independent Working

There were few of the participants reported that they work independently and, in this way, they maintain the data confidentiality. Moreover, one of the participants said that

"I don't allow anyone to check my data because I am alone to do all types of qualitative research."

Category 3: Google Form

The majority of the participants declared that they maintain the confidentiality of the data while the data collection process by taking the information through Google form. that In this way, they maintain data confidentiality. Additionally, one of the participants said that

"Good form is more suitable for me to protect data confidentiality."

Theme 3: Ensuring Validity & Reliability

This theme has derived from the categories i.e., software support, and expert opinion. This theme reflects the opinions of visually impaired researchers about the validity and reliability of their data. The students with visual impact had trouble installing programs, such as voice-over software, on both desktop and laptop, which reduced their use of these tools. Additionally, they have trouble analyzing the material critically (Gabarda et al., 2017).

Category 1: Software Support

The majority of the participants responded that they confirm the validity & reliability of the data through the software of statistical analysis named statistical package for social sciences (SPSS). However, these participants also reported that it becomes very difficult for them to get accessibility to any data analysis software. One of the participants also said that

"I take help from any sighted friend to check the validity & reliability of my data on the SPSS or NVIVO."

Category 2: Expert Opinion

Only a few of the participants stated that they take expert opinion for validity and they do reliability through expert opinion of the relevant field. Moreover, one of the participants said that

"For validity, I used the approach expert opinion and reliability by literature review."

Theme 4: Collaboration

This theme reflects the ways of collaboration by the social science community for visually impaired researchers while collecting the data. This theme has emerged from the categories of help of sighted guide, and team effort. Using the capabilities of current digital technology, students with visual impairment can work together to fulfill their social needs, giving them a better chance to succeed (Salas et al., 2002).

Category 1: Help of Sighted Guide

The majority of the participants reported that they take help from their sighted friends while collecting the data. This is the only way for them to collect the data easily. Moreover, one of the participants said that

"My friends in special education are good in help when I start collecting data."

Category 2: Team Effort

Few of the participants stated that teamwork is significant while collecting data. In teamwork, the data collection is assigned to someone else and they do any other step of the research process. These participants also reported that they take help from their supervisor or team members while collecting data. One of the participants said that

"My supervisor is very cooperative with me. She helps me a lot while collecting the data."

Theme 5: Suitable Approaches

This theme has emerged from the categories of training, software provision, and internet availability. This theme reflects the approaches for using navigation and interpreting complex visual displays of data using assistive technology. The use of social media and instant messaging apps in visually impaired student communication on digital devices has been recognized. According to Ratano (2018), Thongma-eng (2015), and Ylmaz (2019), these platforms were considered as essential for them to communicate as well as a way to ask for help.

Category 1: Training

The majority of the participants said that training is important for visually impaired researchers to have sufficient knowledge of making Google forms and using such strategies of data collection and data analysis. These participants also declared that there is no such way of training visually impaired researchers to get knowledge of such things. Moreover, one of the participants said that

"I think training should be mandatory for visually impaired researchers in their universities for data collection and data analysis process."

Category 2: Software Provision

Only a few of the participants reported software not available free from their universities. These participants also said that they feel much difficulty in obtaining any kind of accessible software for the process of data analysis. One of the participants also said that

"My university did not provide me any of the software for data analysis or even any support. "

Category 3: Internet Availability

Few of the participants stated that the internet is not available freely for visually impaired researchers. These participants also said that they purchase internet facilities from their pockets. Additionally, one of the participants said that

"If the internet is provided freely to all visually impaired researchers then it will bring good change for visually impaired researchers in the field of research."

Findings

The findings of the study have been mentioned below:

Challenges

Visually impaired researchers mostly face the problem of software compatibility and the issues of mobility. These are the two major challenges for visually impaired researchers while data collection and data analysis.

Strategies

Visually impaired researchers use various strategies to protect their data. The reason is visual impairment. The strategies that visually impaired researchers use while data collection are password application, independent working as they feel much easier to work alone, and developing Google form. In this way, they can protect their data.

Ensuring Validity and Reliability

Visually impaired researchers mostly depend on the support of software for the validity and reliability of the data. However, they take expert opinions for the validity of the data. This reflects those visually impaired researchers pass through properly the validity and reliability of the data.

Collaboration

Most of the visually impaired researchers take help from the sighted guide. Sighted guides can be anyone including, family member, friends, or even any paid sighted guide. Visually impaired researchers also depend upon the team and they give credit to their research work as the result of team efforts. This is the way for visually impaired researchers to complete their research.

Suitable Approaches

Visually impaired researchers are willing to work on their own but they require training to use multiple software's for the presentation of graphical data. Visually impaired researchers suppose their university provides them with the appropriate software for data handling, analysis, and provision of free internet facilities by their respective universities.

Discussion

Research with visual challenges becomes a real hurdle for visually impaired researchers. These challenges are experienced by visually impaired researchers when they use technology during the data collection process and data analysis. There are now more opportunities than ever for social researchers to collect data due to the wide variety of study methods available and the advancement of technology over the past 50 years (Sullivan & Jessica, 2012).

Although, visually impaired researchers like other researchers use various strategies during their research process. But considerable to mention here the strategies for protecting their data. The use of passwords and working independently are the most selective strategies for the protection of their data. According to Berg (2007), the potential use and misuse of the Internet continue to move scholars toward finding ways to maintain ethical integrity in research when using the Internet as a research tool.

The ways for doing validity and reliability of the data are to take expert opinion and use SPSS software for reliability. This ensures the validity and reliability of data collected by visually impaired researchers. There is a need to establish and validate such procedures in light of new technologies and new approaches to data collection (Sullivan & Jessica, 2012).

The suitable way of collaboration by the social science research community and sighted colleagues for visually impaired researchers in their data collection efforts is to become a sighted guide for visually impaired researchers. Working in groups allows students to become a part of a community where everyone supports one another (Ibrahim et al., 2015). According to Tinto and Pusser (2006), this will give kids the intellectual and social support they need to learn.

Additionally, assistive technology is the more comprehensive approach for visually impaired researchers to interpret complex visual displays while the data collection and data analysis process. By combining multiple widely used technologies, we were able to create a

space for group conversation and instructional support without any prior planning. A secured shared drive, email, and Discord® were some of these technologies (Grimsby, 2023)

Conclusion

To sum up the study, it can be concluded here that visually impaired researchers experience various challenges in their normal daily life especially when collecting data for their research thesis or article. These challenges can be overcome by applying various strategies including support from the social sciences community, the use of appropriate assistive technology, and making them independent by working on improving their mobility skills. This may be difficult for them to remove all barriers they face during data collection and data analysis procedure, but it is probable to provide them with suitable sighted guide support and facilitating them in the training of need-based assistive technology. This study depicts explicitly all the worthy approaches which can help any visually impaired researcher to grow in their practical life with a pragmatic approach.

Recommendations

1. The study recommends the followings:

2. Accessibility of data analysis software should be made possible for visually impaired researchers.

3. Visually impaired researchers should be facilitated by their respective universities about the solution to the mobility issues while the data collection process.

4. The higher education commission of Pakistan should implement a quota system for the publication of visually impaired researchers to promote their research activities without any publication charges.

5. sciences community should develop a complete social map to encourage visually impaired researchers to promote research activities.

6. Particular training for using data analysis accessible software for only visually impaired researchers should be conducted from time to time in their respective universities to promote their independent research activities.

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