COMPARATIVE ANALYSIS ON THE STATE OF INCLUSIVENESS OF VISUALLY IMPAIRED PEOPLE IN PAKISTAN

Pakistan Institute of Development Economics

By

Arisha Karim

PIDE2021MPHILPPF24

Supervisor

Dr. Muhammad Jehangir Khan

MPhil Public Policy

PIDE School of Social Sciences

Pakistan Institute of Development Economics,

Islamabad

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PIDE Pakistan Institute of Development Economics, Islamabad
PIDE School of Social Sciences

CERTIFICATE

This is to certify that this thesis entitled: **"Comparative Analysis on the State of Inclusiveness of Visually Impaired People in Pakistan."** submitted by Arisha Karim is accepted in its present form by the PIDE School of Social Sciences, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Public Policy.

Supervisor: Dr. Muhammad Jehangir Khan Signature: _____

External Examiner: Dr. Ikram Badshah Signature: _____

Head,
PIDE School of Social Sciences: Dr. Hafsa Hina Signature: _____

FORMAL DECLARATION

I, Arisha Karim, hereby solemnly declare that the work describe in this thesis "Comparative analysis on the state of inclusiveness of visually impaired people in Pakistan" has been carried out by me under the supervision of Dr. Muhammad Jehangir Khan. I have not used any further means for completion of this work except those I have explicitly mentioned in this thesis. All concepts adopted and copied from other written sources have been properly referred in the source. This work has not been published or submitted to any other examination in the same or similar form.

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Arisha Karim

Arisha Karim

DEDICATION

This study is wholeheartedly dedicated to my husband **Mr. Zeeshan Mahmood,** without his support the completion of this task would have not been possible.

ACKNOWLEDGEMENT

I am sincerely grateful to Almighty Allah for enabling me to complete this humble contribution within the allotted time. I hold great reverence for Holy Prophet Muhammad (PBUH), the greatest educator and supporter of humanity, who emphasized lifelong learning.

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Abstract

This research conducted a comparative analysis on the inclusiveness of visually impaired individuals in Pakistan, particularly in education and infrastructure accessibility. Using Content Analysis approach, it compared laws protecting their rights in Pakistan, the European Union, India, and the United States, based on UNCRPD standards. The study evaluated the role of PESTL factors in law implementation. Findings reveal a shared commitment among these countries to promote the rights of visually impaired individuals, emphasizing equity, inclusivity, accessibility, and social welfare in their legal frameworks. However, challenges in implementing these laws persist due to PESTL factors. Thematic analysis of primary data from semi-structured interviews with sixty visually impaired individuals in Pakistan revealed significant challenges in various aspects of their lives, calling for comprehensive changes and increased support. In education, knowledge gaps and admission obstacles limit their access, necessitating improvements in the implementation of laws. Misconceptions and inaccessible facilities hinder their participation in sports, while special educational institutions vary in meeting their unique needs. Accessing accommodations, online resources, and libraries remains challenging. The inclusive social infrastructure falls short, affecting personal decisions, privacy, and relationships. Mobility and employment face limitations, including barriers to public spaces and workplace discrimination. Suggestions are provided to enhance inclusiveness for visually impaired individuals in Pakistan.

CHAPTER 1

Introduction

1.1 Introduction:

Everyone faces difficulties in one's life but the person with disability encounters these difficulties many a time throughout his life. Factors which act like difficulties or hindrances may include inaccessible physical environment, lake of assistive technology, discriminatory attitudes, non-existence of supportive polices and existence of systems or policies that discourage equal involvement of all people in every spheres of life (WHO 2001). Among different types of disabilities the visual impairment is one of them. People across all ages can be affected from eye conditions but there is high frequency of eye disorder in young children and old people. Age-related muscular degradation, diabetic retinopathy, retinitis pigmentosa, glaucoma and cataract are the commonly occurring causes of vision impairment (Flaxman et al., 2017). According to World Health Organization (WHO 2022), at least 2.2 billion people globally are suffering from complete or partial visual impairment.

Blindness is one of the most misunderstood types of imparity. Most of people have their own understanding about blind people without even contacting a visually impaired person. They do lead a normal life but troubles like social challenges and inaccessible infrastructure decrease their socio-economic productivity (Korir, 2015). Navigation around places is the biggest challenge for completely blind people. Moreover, the absence of tactile tiles, which could otherwise make a place associable, creates a big problem for blind people (Mwakyeja, 2013). Apart from this, text books in braille, internet accessibility, image reading software and screen reading software are either unavailable or inaccessible for majority of visually impaired people (Shipman, 2022).

In 2006 UN Convention on the rights of persons with disabilities (CRPD) stipulated a charter to protect the rights of persons with disability. Its article 5 ensures equality and non-

discrimination, article 8 urges member states to adopt appropriate measures to combat stereotype, article 9 ensures independent participation in every aspect of life by enabling accessibility in areas especially public or private infrastructure, information and communications technologies. Moreover, point 4, 8, 10 and 11 of Sustainable development Goals guarantee access to quality education, inclusive economic growth and socio-economic equity of persons with disability respectively. In addition to this, in 2021 the UN has unanimously adopted its first ever resolution regarding visual impairment as a part of Sustainable Development Goal: "Vision for Everyone; accelerating action to achieve the Sustainable Development Goals". The resolution commits global community to take substantial measures for ensuring equity, inclusiveness and economic productivity of blind people (IAPB, 2021).

To fulfill the obligations outlined in the CRPD, countries around the world have developed and implemented various laws and policies to protect the rights of their visually impaired citizens. These laws and policies aim to ensure accessibility, equality, and inclusion for visually impaired individuals in different spheres of life, including education, employment, healthcare, and social participation (Yeo et al., 2018).

For example, in the United States, the Americans with Disabilities Act (ADA) was enacted in 1990 to prohibit discrimination against individuals with disabilities in all areas of public life, including employment, transportation, and public accommodations. The ADA has been amended over the years to ensure that individuals with visual impairments have equal access to information, services, and employment opportunities (Bagenstos 2011).

In the European Union, the European Accessibility Act was adopted in 2019 to ensure that products and services are accessible to all, including persons with disabilities. The act sets out minimum accessibility requirements for a wide range of products and services, including computers, smartphones, ATMs, and transportation services (EU 2019).

In India, the Rights of Persons with Disabilities Act was enacted in 2016 to provide for the protection and promotion of the rights of persons with disabilities, including visually

impaired individuals. The act aims to ensure accessibility and equal opportunities in education, employment, and social participation (Malhotra et al., 2018).

In Pakistan, the rights of visually impaired individuals are protected under the Disabled Persons (Employment and Rehabilitation) Ordinance, 1981 and there have been made various amendments in this act over the time. Apart from this, Pakistan ratified the Convention on the Rights of Persons with Disabilities (CRPD) in 2011, which has led to some legislative changes regarding the rights of visually impaired people. The most significant law in this regard is the the ICT Rights of Persons with Disability act, 2020 which is in line with the CRPD and provides a legal framework for the protection and promotion of the rights of persons with disabilities, including those with visual impairment.

Despite these legislations, visually impaired people in Pakistan face several challenges that hinder their ability to participate fully in society. Overall, the lack of accessibility, education, employment opportunities, assistive technology, and discrimination are significant challenges faced by vis1ually impaired people in Pakistan (Hussain et al., 2022).

In this research work a comparative analysis is conducted regarding the state of inclusiveness of visually impaired people in Pakistan and its comparison with that of the USA, EU and India. Comparison of state of inclusiveness in these countries is justified by several compelling arguments. These countries represent diverse global regions, encompassing leading global powers in North America and Europe, a populous and emerging economy in South Asia, and nations that share a similar cultural and historical background, having gained independence from British colonial rule in 1947. This diversity facilitates a comprehensive assessment of inclusiveness across various regions and allows for an examination of varying levels of development. While the United States and the European Union boast advanced infrastructure, education systems, and social welfare programs, India and Pakistan, despite their shared history, face unique challenges as developing nations. This comparison will illuminate how inclusiveness measures differ in these distinct developmental contexts. Furthermore, the United States and the European Union often set global benchmarks for policies related to inclusiveness and disability rights, serving as valuable sources for analyzing international standards. Contrasting these

standards with those of India and Pakistan enables a nuanced understanding of policy implementation gaps and the distinct challenges encountered in South Asian countries. Additionally, considering the influence of socio-cultural factors, such as language diversity, societal norms, and regional conflicts, within the context of India and Pakistan's shared history but distinct dynamics, the study can identify how cultural factors shape inclusiveness policies. Ultimately, the findings from this comparative analysis extend beyond these selected countries, as inclusiveness issues faced by visually impaired individuals are not confined to specific regions. They offer lessons and best practices applicable on a global scale, contributing to a broader discourse on inclusiveness and disability rights, thus benefiting policymakers and stakeholders worldwide.

1.2 Statement of the Problem (SoP):

Access to the resources is the right of every individual in a society but it is denied to some communities which make them marginalized. Consequently they face various predicaments in materializing their individual or collective goals. Visually imparity is such type of disorder which makes a conventional society thinks about a visually impaired person as a socio-economic burden. In developing countries these people face various challenges in daily life in term of accessibility. From navigation around places to getting access to educational places these people face hurdles at every step. Tactile tiles, braille literature and screen reading software are some of basic necessities for these people; however, in most of the cases these necessities remain totally unavailable. In this regard various research works have been conducted to find a way forward for amelioration of the lives of these people. Nonetheless, none of them have conducted a comparative analysis of state of accessibility of various necessities in educational institutions, public infrastructure and work places in Pakistan in comparison to developed nations. While it is evident that developed nations typically have more resources to allocate for the welfare of differently-abled individuals, this comparative study serves a vital purpose. Firstly, it provides a benchmark for assessing the current state of accessibility in Pakistan, allowing us to identify the existing gaps and areas for improvement. By examining the disparities between Pakistan and developed nations, we can pinpoint specific challenges and barriers faced by visually impaired individuals in Pakistan that may be overlooked when solely focusing on domestic issues.

Secondly, this comparison offers valuable insights into potential solutions and best practices that have been successfully implemented in developed nations. These insights can inform policies and strategies tailored to the unique context of Pakistan, facilitating more effective resource allocation and the enhancement of accessibility for all. In essence, the comparative analysis not only highlights disparities but also provides a roadmap towards achieving a higher level of inclusiveness and accessibility in Pakistan, ultimately benefiting the entire population, including those with disabilities. Moreover, I being a visually impaired person would also be able to make it a participatory research which would add a great value to my research in comparison to previous researches.

1.3 Research Problem:

Based on the narrative of SoP as stated in the preceding text, I am narrowing my research problem into **"Comparative Analysis on the State of inclusiveness of visually impaired people with reference to Pakistan"** and have operationalized my topic into following research questions and objectives.

1.4 Research Questions:

1. How do the approaches of the USA, EU, and India differ from those of Pakistan in ensuring the protection and promotion of the rights of visually impaired people?
2. What are the gaps in legislation and their implementation for visually impaired individuals in the USA, EU, India, and Pakistan?

1.5 Research Objectives:

1. To identify the differences in the approaches to protect the rights of visually impaired individuals in selected countries by an in-depth policy analysis.
2. To highlight the gaps in legislation and implementation of policies related to the protection and promotion of the rights of visually impaired individuals in the selected countries by employing a multifaceted approach, including semi-structured interviews with visually impaired individuals and to propose recommendations for bridging these gaps.

The research objectives are concentrated on two core domains: the inclusiveness of visually impaired individuals in the field of education and the accessibility of public infrastructure.

1.6 Significance of the Study:

Conducting research on the protection and promotion of the rights of visually impaired individuals is significant because this group faces significant challenges in accessing education, employment, and public services. The research identifies effective strategies and policies used by different countries, and the gaps in legislation and policy implementation. By proposing evidence-based recommendations for improvement, the research serves as a call to action for policymakers and advocacy groups to address these gaps and improve the lives of visually impaired individuals. The findings contribute to the body of knowledge on this topic and are relevant not only to the selected countries but also to other countries facing similar challenges. Ultimately, this research helps create a more inclusive and equitable society for visually impaired individuals.

CHAPTER 2

Review of Literate

This chapter deals with the review of literature related to educational facilities and infrastructure accessibility for visually impaired individuals across various countries, including the USA, EU, India, and Pakistan.

2.1 Literature review regarding availability of Educational facilities:

This part focuses on the educational facilities available to visually impaired individuals in aforementioned countries, analyzing their strengths and weaknesses.

2.1.1 European Union

According to Brasse (n.d.) Germany has an estimated population of 155,000 blind and 500,000 to 600,000 visually impaired people, mostly aged 60 or older. Traditionally, blind and low vision children were educated in special schools. In the 1960s, there was a shift towards educating partially sighted students with residual vision. Inclusive education gained momentum after Germany ratified the UN Convention on the Rights of Persons with Disabilities in 2009, but a lack of financial resources and trained specialists remains a challenge. Over the last few decades, medical progress has resulted in severely multiply disabled children constituting the majority of blind and partially sighted students.

Hewett et al. (2016) conducted research on inclusive education in England and observed that visually impaired students in the UK face a range of challenges in their education. One of the main difficulties is access to appropriate materials, such as textbooks and learning resources that are adapted to their needs. They may also encounter difficulties in navigating the physical environment of schools and universities, particularly when it comes to accessing classrooms, labs, and other facilities. Social isolation can also be a problem for visually impaired students, as they may struggle to communicate with their peers,

particularly in group work situations. Additionally, they may experience challenges in terms of getting the right support and accommodations from their schools, and may face negative attitudes and stigma from some members of staff and the wider community.

Karellou (2020) concluded that Greek students face a variety of challenges in their education. One of the major issues is a lack of resources, including inadequate funding for schools and a shortage of qualified teachers. This has led to overcrowded classrooms and a lack of individual attention for students. Another challenge is the rigid curriculum, which can leave students unprepared for real-world situations and limit their creativity. Additionally, the high-stakes entrance exams for universities place a great deal of pressure on students, often leading to stress and anxiety. Furthermore, the COVID-19 pandemic has exacerbated these challenges, with many students struggling with online learning and social isolation. To overcome these challenges, Greece needs to invest more in education and provide greater support for students and teachers alike.

Jain (2018) in his article examined the history and evolution of disability rights legislation in various countries including UK, France and other European countries. He discussed the country's approach to disability rights as one that is heavily influenced by its social welfare system, which emphasizes equal access to education, employment, and public services. Jain also noted the impact of the United Nations Convention on the Rights of Persons with Disabilities on French disability rights legislation. He argued that disability rights legislation has come a long way, but there is still much work to be done, particularly in addressing issues of discrimination and promoting inclusion. The article provided a comprehensive analysis of the state of disability rights legislation around the world and offer insights into the challenges that remain.

European Commission (2021) in its report highlighted that the European Disability Strategy 2010-2020 aimed to make Europe barrier-free for the approximately 87 million people with disabilities in the EU. Although the strategy has made progress in promoting disability rights and accessibility, people with disabilities still face significant barriers in accessing healthcare, education, employment, and political participation. They also have a higher risk of poverty and social exclusion. In 2019, over half of people with disabilities reported

feeling personally discriminated against. The COVID-19 pandemic has worsened these challenges, amplifying obstacles and inequalities. People with disabilities in residential care have higher infection rates and suffer from isolation, while those living in the community face restricted personal service delivery and limited accessibility to technology necessary for daily tasks.

2.1.2 India

Kumar et al., (2017) estimates the population of persons with disabilities at 2.21% or 2.68 crore, according to the 2011 Census. Four legislations govern the sector, namely the Rehabilitation Council of India Act, 1992; Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995; National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act, 1999; and Mental Health Act, 1997. The Right to Education Act, 2009, amended in 2012, includes children with disabilities for free and compulsory education. Despite recent increased focus on educating children with disabilities, fundamental issues remain in understanding and responding to differences. Education is a priority for parents of children with disabilities, who are equally willing to invest in private education.

Pandey and Pandey (2020) critically analyzed British Council's report (2014) and highlighted four challenges faced by Indian higher education, including low enrollment rates, poor quality teaching and learning, limited research capacity and innovation, and uneven growth and access to opportunities. They also observed that students with visual impairments encountered various obstacles in accessing higher education, such as architectural barriers, attitudinal barriers, unavailability of special services and materials, teacher stigmatizations, open distance learning related issues, scholarship and cost related issues, and employment and placement barriers. They suggested that to ensure accessibility and inclusion for visually impaired students, universities would need to implement universal design principles, foster positive attitudes, provide special services and materials, plan curriculum rigorously, and address funding and employment related issues.

Das and Ghosh (2020) conducted critical analysis on status of inclusive education in India. They observed inclusive education face several challenges such as inadequate training for teachers, lack of parental knowledge, poorly designed schools, equity issues, funding problems, and institutional lack of knowledge. To solve these problems, the government should take initiatives to universalize inclusive education, and both government and private agencies should donate funds. Institutions should give proper training to teachers, and the government should arrange awareness programs for parents. Teachers of inclusive schools should have proper knowledge of child psychology, and the curriculum should be flexible and child-centric. Addressing these challenges will help promote inclusive education, which is essential for providing equal opportunities to all children, regardless of their abilities or disabilities.

Palan (2020) in his research examined the experiences of 29 students with visual impairments in pursuing higher education (HE) courses in India. The research found that systemic exclusion, lack of information, internalized oppression, pedagogy, and employment opportunities restricted their access to courses and career opportunities. Particularly, science and mathematics-based courses were difficult for them to pursue due to inadequate support systems, inaccessible teaching practices, and limited work opportunities. The study recommended HE authorities recognize the ability of students with visual impairments to learn visual-based subjects and provide support for learning mathematics and science in school.

Kapur (2017) conducted research to gather information on the challenges visually impaired students face in education, such as difficulties with reading, writing, listening, and speaking, lack of knowledge and resources, negative attitudes, and rigid curriculum. The research concluded that to address these challenges, effective communication, sitting close to the board, and using technology and assistive devices are helpful strategies. It's also important for textbooks to contain enlarged diagrams and writing. Resolution strategies were determined by factors such as the extent of visual disability, availability of Braille and alternative formats, affordability, and perceived usefulness. To support visually impaired students, proper assistance and support at home and school, awareness of technology and assistive devices, and positive thinking and motivation towards learning are crucial.

2.1.3 Pakistan

Khowaja (2021) examined the challenges and barriers faced by visually impaired students in tertiary education in Pakistan. The emic perspective of the students revealed external barriers such as labeling, societal attitudes, lack of educational resources, inappropriate teaching pedagogy, and the integration of visually impaired individuals. Strategies to improve tertiary education in Karachi, such as inclusive education policies, accessible learning materials, assistive technologies, and teacher training programs, were also suggested. The tertiary education is an essential component in the lives of individuals with disabilities, and the obstacles faced by visually impaired students in tertiary education can be addressed through appropriate policies and programs that enable them to pursue their academic aspirations.

Ahmad and Naveed (2020) explored the accessibility of information for university students with visual impairment in higher academic institutions in Lahore, Pakistan. Fifteen visually impaired students were interviewed face to face using an interview guide, and the data was analyzed using interpretative phenomenological analysis (IPA). They found out that interpersonal relationships were the primary source of academic information for these students, with the internet, disability resources center, and university library also being used. Format barriers, navigational barriers, technical barriers, ICTs illiteracy, and financial barriers were identified as major obstacles to accessing the necessary information. The study suggests that university administration, especially libraries, should consider students with different disabilities while designing information infrastructure and it can be used as a guide to design information services for visually impaired students.

Jahanzaib et al., (2021) conducted a research work to identify the difficulties faced by children with visual impairment in achieving the learning outcomes set by the Single National Curriculum (SNC) in Pakistan. The researchers conducted a qualitative analysis of the SNC and its associated learning outcomes for seven key learning areas and six subjects, retrieving the data from the National Curriculum Council website. The findings revealed

that while many of the standards and benchmarks were achievable for children with visual impairment, some were difficult to accomplish due to their visual limitations and lack of support. The study recommended adaptations, modifications, and accommodations for children with visual impairment, especially in areas like geometry, science, and geography. Visual tasks were suggested to be substituted with other learning tasks to improve accessibility for these students.

Fatima et al., (2014) conducted a survey study to identify difficulties and barriers faced by visually impaired students enrolled in different programs of Allama Iqbal Open University (AIOU) in Pakistan. The study collected data from a sample of 40 visually impaired students using a self-developed questionnaire. The findings showed that students with visual impairment faced challenges in orientation, transportation, academics, and accessing reading materials in Braille, soft and audio form. The study recommended that Distance Education Teachers should provide material to students in Braille and soft form, allow examination in four modes, establish disability-friendly libraries, and provide audio recorded books and note-taking assistance in the classroom.

Khan et al., (2016) examined the information literacy skills of visually impaired teachers (VITs) in blind schools in Pakistan. The study was conducted with 55 VITs from 10 blind schools in the province of Khyber PukhtunKhwa, Pakistan. The purpose of the study is to assess how VITs identify, explore, select, organize, create, present, assess, and apply information in teaching and everyday life, using the Information Literacy Empowering Eight model developed by the International Federation of Library Associations (IFLA). The study found that VITs were highly skilled in terms of organizing information and taking personal responsibility while searching for required information. However, they were less skilled in using and applying new tools for information searching and lacked effectiveness in presenting data.

Malik et al., (2018) evaluated the special education curriculum for visually impaired children in Pakistan and assess their family adjustment issues. The study collected data using a self-developed questionnaire from a sample of 5 secondary schools for visually impaired children aged 15-20 years in Lahore, Pakistan. The researchers concluded that

visually impaired children were satisfied with the education and the schools' system provided to them. The study suggested that teachers' active participation could play a crucial role in providing visually impaired children with an effective learning environment to help them adjust in their families.

2.1.4 United States of America

Adomfeh et al. (2022) conducted a cross-sectional study to investigate the visual health disparities among adolescent children in the US. The study analyzed data from the 2005 to 2008 National Health and Nutrition Examination Survey. The results revealed that adolescent children identifying as Black, Mexican American, low-income, or non-US citizen were more likely to report poor subjective visual function and perform worse on objective visual acuity testing. The study found increased odds of self-reported poor vision among Black, Mexican American, and low-income adolescent children. Similarly, there were increased odds of visual acuity worse than 20/40 in the better-seeing eye among Black, Mexican American, and non-US citizen participants. The study suggests that understanding the underlying causes of these disparities could lead to opportunities for improving vision at the population level.

Haegele et al. (2023) explored visually impaired youth's views on teacher-initiated activity modifications during integrated physical education. The study included 18 visually impaired youth aged 12-15, and four themes were identified based on a thematic analysis of the interviews. The themes revealed that modifications were interpreted as care and could highlight impairment, and modifications were a two-way street. Modifications were also seen as Band-Aids over flawed activities and curriculum. While modifications represented care, they could also spotlight differences and impairments. Modifications that were executed without communication with students were unfavoured by visually impaired students, highlighting the need for flexible, student-centered teaching strategies.

Sparks (2022) reported that the National Center for Special Education Research (NCSER) focused on studying the potential of virtual environments to address the emotional and behavioral needs of students with disabilities as they transitioned back to school after

COVID-19 closures. NCSER also identified areas of opportunity for early intervention and special education, including addressing diversity, equity, inclusion, and accessibility challenges, conducting research on educators and school-based service providers, understanding issues of access and completion of college for students with disabilities, improving assessments and measures for learners with disabilities, and obtaining better and more timely data on special education financing. The goal was to improve instruction and outcomes for students with disabilities by conducting research in these areas.

Haegele et al. (2016) conducted a study to understand the current status of physical education for children in residential schools for the blind in the United States. A questionnaire was sent to 51 physical education teachers from 35 schools, and data were analyzed descriptively across four main areas. Most teachers reported that their schools employ certified physical educators, use curricula tied to state or national standards, possess a variety of facilities, offer a variety of sports, and teach a varied student population. Positive findings included hiring certified physical education teachers and utilizing curricula tied to standards. Concerns included the lack of validated assessments in adapted physical education and the need for additional training for teachers related to children with disabilities.

Koehler and Wild (2019) conducted research on views of teachers of students with visual impairments regarding their students' access and participation in the science curriculum. The study involved interviews with 14 teachers of students with visual impairments from across the United States. The findings indicated that teachers faced challenges in providing their students with access to science curriculum materials, equipment, and technology, and that they often needed to adapt or modify materials to meet their students' needs. The teachers also emphasized the importance of hands-on experiences and practical activities in engaging their students in science, and expressed a need for more professional development opportunities to support their teaching of science to students with visual impairments.

2.2 Literature review regarding Infrastructure Accessibility:

The part focuses on the infrastructure accessibility for visually impaired people in the same countries, shedding light on the challenges and advancements in the accessibility of public places, transportation, and technology.

2.2.1 European Union

Shrestha et al. (2017) studied that improved living standards and medical advances have led to an increase in life expectancy, causing more physiological changes in older individuals that can affect mobility. Public transportation plays an important role in maintaining an active lifestyle for visually impaired older people who cannot drive. The GOAL project analyzed the requirements of older people using public transport in terms of affordability, availability, accessibility, and acceptability. The project identified five different profiles of older people, including those who are visually impaired, and highlighted areas of knowledge gaps and research needed to make public transport more attractive and accessible to older people in the 21st century.

A cross-sectional study was conducted by Brunes and Heir (2022) in Norway to explore the employment rates among working-age adults with visual impairment and its association with various factors. The study included a sample of 574 adults who were members of the Norwegian Association of the Blind and Partially Sighted. The findings revealed that 51.2% of males and 38.1% of females were employed. Being of middle age, male gender, higher education, residing in high-income municipalities, having moderate degree of vision loss, lower onset-age of vision loss, and having no additional impairments were associated with higher employment rates. Employed participants had lower levels of depression and higher life satisfaction levels.

Revillard (2022) studied the role of work in the disability sector as a potential solution or manifestation of exclusion for disabled individuals in the labor market. Drawing on Carol Thomas's social relational approach, biographical interviews were conducted in France with

people who had visual or mobility impairments. The study's findings demonstrated that work in the disability sector was experienced as ambivalent, with some seeing it as a form of occupational segregation and others considering it a means of self-fulfillment.

Emerson et al. (2020) examined the differences in personal wellbeing (PWB) between visually impaired and non-visually impaired working-age adults in the UK, and whether these differences were moderated by certain demographic characteristics. The researchers analyzed data from national surveys and found that visually impaired individuals had lower scores on PWB indicators. Demographic characteristics such as gender, age, ethnicity, partnership status, and socio-economic position were found to play a role in the negative association between visual impairment and PWB. The study highlights the importance of understanding how social determinants interact to produce inequities for visually impaired individuals and can inform policy interventions to address these inequities.

Sandstrom et al. (2021) analyzed the probability of living alone among working-age individuals with and without disabilities in Sweden from 1993-2011. Results showed that individuals with disabilities especially visually impaired were twice as likely to live alone and report low life satisfaction, particularly those living alone. Disabled individuals also experienced longer periods of living alone. The study suggests that societal barriers limit disabled individuals' ability to find and sustain relationships leading to cohabitation, despite efforts to improve inclusion in society. No evidence was found for reduced differences in family outcomes over time.

2.2.2 India

Bhardwaj (2022) conducted a study to explore the perceptions of visually impaired students in Indian universities regarding the development of information systems to better fulfill their information requirements, with a special focus on infrastructure accessibility. The study utilized two methods: a survey of visually impaired students in four universities and the design and development of an online information system for visually impaired users. The survey revealed that respondents faced significant barriers to accessing information due to a lack of content availability in vernacular languages, poor access to information

resources, and poorly maintained assistive software and devices. Additionally, respondents preferred the use of scribes in examinations due to the time-consuming nature of assistive technology use and lack of training and confidence in using it.

Pal et al. (2017) reported that the perception of usability and usefulness of technology is assumed to be central to its adoption. Traditionally, research on accessibility and assistive technology has focused on the artifact rather than the individual. However, a mixed-methods field study of smartphone adoption by 81 people with visual impairments in Bangalore, India, challenges these positions. Many users switch to smartphones despite significant usability challenges. A nuanced understanding of perceived usefulness and actual usage based on need-related social and economic functions is proposed, which is an important step toward rethinking technology adoption for people with disabilities.

Engel et al. (2020) studied the challenges faced by people with visual impairments in planning and implementing a journey to unknown places. A survey was conducted with 106 participants to understand the strategies they used to prepare for a journey, how they orient themselves in unfamiliar buildings, and the materials they used. The analysis revealed that people with blindness and low vision have different requirements. Participants highlighted the information gap in terms of the accessibility of public transport, outdoor and indoor environments, availability of indoor maps, and supporting systems. The findings suggest the need for better information resources to aid navigation and improve accessibility for people with visual impairments.

Kavitha (2020) explored the relationship between employment opportunities and education for individuals with visual impairments (VI) post-2011, a period of globalization and advanced technology. The study identified gaps in the system, emphasizing the importance of defining roles and eliminating malpractice during recruitment. The RPWD Act, 2016 ensured adequate employment opportunities for VI individuals and established agencies responsible for implementation. However, poor implementation of certain facets of the act led to the unavailability of clear reports on jobs identified by each employer and number of VI employed in each organization. The study highlighted the need for defining roles to facilitate the overall development of VI individuals.

2.2.3 Pakistan

Baloch and Ashfaq (2017) conducted study to explore the impact of mass media on the visually impaired community in Pakistan. It was observed that mainstream society marginalized the blind community and did not provide them with equal status, leading to a lack of social belonging. Respondents denied any progressive role of mass media in creating social belonging between the blind community and sighted society, as the media only highlighted issues that sold quickly. Radio and the internet were considered the biggest sources of gratifying their informative, sociological, and entertainment needs. Based on the study's findings, recommendations were made for the mass media of Pakistan, such as running proper awareness campaigns, hiring qualified visually impaired people, adopting respectful language, making media content accessible for visually impaired viewers, providing a dedicated radio channel, and casting visually impaired artists in video productions.

Gul (2020) studied the policies in the field of disability designed to protect the rights of disabled people and ensure their accessibility to various services. He observed, in third-world countries like Pakistan, the implementation of these policies has been inadequate, with legislation often being just words on documents. Pakistan has signed and ratified the UNCRPD, which has led to the introduction of comprehensive policies and laws, but before this, sporadic measures were taken to include disabled people in mainstream communal activities. However, these policies have not brought about significant changes in the lives of disabled people due to the lack of proper implementation mechanisms at the national and local levels. International efforts are crucial in the development of policies for disabled people.

Hussain et al. (2022) conducted a research to examine the obstacles to accessibility encountered by visually impaired individuals in public infrastructure in Pakistan. A tool for collecting data was created to gather qualitative and quantitative data. Data was collected from visually challenged individuals in various public locations throughout the city. The findings indicated that while some features, such as audio guidance systems, were available, others, such as tactile warning strips and braille signage, were lacking. Only 10%

of locations had tactile warning strips, while braille signage was only present in 5% of locations. Additionally, 15% of locations provided audio guidance systems to assist visually challenged individuals in navigation.

Ali and Abdullah (2023) studied the challenges that visually impaired people faced while using public transport in Lahore, Pakistan. Data was collected through a questionnaire-based approach and exploratory factor analysis was conducted to identify underlying factors related to the perceptions of visually impaired people about issues with public transportation. The study found that visually impaired people faced spatial and financial inequity, infrastructural inaccessibility, and service inadequacy, which could lead to social exclusion. The study also found that gender, household income, use of mobility aids, primary purpose of traveling, vehicle ownership, and infrastructural inaccessibility were significant predictors of mode choice for visually impaired people. The study suggests that specific policies and stricter implementation are needed to improve the accessibility and public transport ridership for visually impaired people in Lahore.

2.2.4 United states of America

Hara et al. (2015) presented a scalable method for collecting bus stop location and landmark descriptions using online crowdsourcing and Google Street View (GSV). Three studies were conducted, including an interview study of 18 people with visual impairments to inform the design of the tool, a comparative study examining differences between physical and virtual bus stop audits using GSV, and an online study of 153 crowd workers to examine the feasibility of crowdsourcing bus stop audits. The findings showed the importance of landmarks in nonvisual navigation, demonstrated that GSV is a viable bus stop audit dataset, and showed that minimally trained crowd workers could identify bus stop landmarks with high accuracy.

Giudice et al. (2019) evaluated the performance of the MagNav system, a speech-based indoor navigation system, among 12 visually impaired participants and 12 sighted controls at the Mall of America. The study found that the blind participants who received real-time verbal information from the MagNav system performed route travel faster, more accurately,

and with more confidence compared to conditions where the same route information was only available to them in advance. The study concludes that infrastructure-free, low-memory demand navigation systems can support complex indoor navigation and provide insight for developers of accessible navigation systems to minimize memory demands.

Grussenmeyer et al. (2017) interviewed people who were blind and visually impaired about their experiences with the job search and interview process to investigate whether accessibility issues played a role in the high unemployment rate for this population. The interviews revealed many accessibility issues, including inaccessibility of job applications, pre- and post-interview tests, and accommodations during the interview, and the employee onboarding process. Based on the interviews, guidelines were developed for employers, which included educating recruiters and interviewers about the challenges and accommodations for people with visual disabilities, understanding the specific accommodations needed for those with low vision, providing accessible indenting for code, being transparent about accommodations offered, making the onboarding process accessible, and testing job openings and applications for accessibility with screen readers and magnifiers.

Cavazos et al. (2021) aimed to improve the autonomous access to visual artworks for blind and visually impaired people through an interactive multimodal guide prototype. The prototype used audio and tactile modalities and a touch-sensitive 2.5D artwork relief model that allowed users to explore artworks through touch and access localized verbal descriptions and audio. The design requirements for the prototype were derived from a formative study with eight participants, museum staff, and artists, which was later extended through two accessible art exhibitions. The evaluation of the prototype through a usability survey indicated that it was easy to use, improved confidence and independence in exploring visual artworks, and was well-received by the participants.

CHAPTER 3

Research Methodology

3.1 Introduction:

This chapter provides an overview of the methods and materials employed to shed light on the objectives stated in the study's introduction. It explains the approach taken to address the research questions and achieve the desired outcomes. The chapter elaborates on the specific methodologies utilized, as well as the materials and resources utilized during the research process. By outlining these details, readers gain a better understanding of how the study was conducted and the steps taken to explore the research objectives.

3.2 Research Method:

This study employed a combined approach of content analysis technique, unstructured and semi-structured interviews to conduct a comprehensive investigation into the protection of rights for visually impaired individuals. Semi-structured interviews and open-ended questions were instrumental in this research, enabling a deep exploration of the challenges faced by visually impaired individuals in Pakistan. These methods provided rich qualitative data, allowing participants to openly share their experiences and perspectives. This approach revealed detailed insights into the complex challenges across various life domains, such as education, social interactions, and employment. It offered a nuanced understanding of their experiences, forming the foundation for the research's recommendations and insights. The content analysis technique played a crucial role in facilitating a comparative analysis of the legislative frameworks in the United States (USA), European Union (EU), India, and Pakistan, enabling a detailed examination of the laws and regulations pertaining to the rights of visually impaired individuals.

Through the content analysis technique, the legislative texts were systematically examined, allowing for the identification and categorization of relevant information such as legal

provisions, rights, and obligations. This methodological approach ensured a meticulous and thorough analysis of the laws, ensuring that no crucial details were overlooked.

In addition, the legislative frameworks of the USA, EU, India, and Pakistan were compared with the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). This comparison served as a benchmark to assess the level of compliance of these countries' laws with internationally recognized standards for the protection of the rights of persons with disabilities.

Furthermore, to complement the findings from the content analysis, unstructured and semi-structured interviews, of visually impaired people in Pakistan, were conducted. These interviews provided an opportunity for interactive and communicative discussions with key stakeholders, experts, and individuals directly affected by the legislation. By engaging in these interviews, a deeper understanding of the practical implications of the laws and policies concerning the inclusiveness of visually impaired individuals in the domains of Education and Public Infrastructure was gained.

The chosen research methodology was grounded in qualitative principles, allowing for a nuanced evaluation of the effectiveness of the laws and policies under study. By integrating the content analysis technique and interviews, this study aimed to provide a comprehensive and multi-faceted analysis of the legal landscape and its practical implications for the rights and well-being of visually impaired individuals

According to Ahmad et al. (2019), qualitative research is a comprehensive investigation that aims to develop a deep understanding of social phenomena within their natural contexts. It focuses on uncovering the "why" behind phenomena rather than just the "what," relying on firsthand accounts and experiences of individuals. Qualitative analysis employs various inquiry methods, such as case study, ethnography, historical analysis, and discourse analysis, to study natural settings and human phenomena.

The strength of qualitative research lies in its ability to provide detailed insights into individual perspectives, practices, and characteristics. In the case of visually impaired individuals, qualitative research has been instrumental in examining their nuanced

perceptions and experiences, particularly in assessing the gaps in the implementation of laws and policies designed to protect their rights. By delving into the intricate details, qualitative research offers a rich understanding of the challenges faced by visually impaired individuals and contributes to the evaluation of existing frameworks aimed at their support and inclusion.

The primary objective is to provide a comprehensive understanding of the progress and advancements in a particular region. To gather relevant information, interviews were conducted as a means of data collection.

3.3 Research Locale:

The study focused on blind individuals in Pakistan, encompassing multiple regions within the country. With an estimated 1 percent of the population, which amounts to around 2.2 million people, living with blindness, it was important to gain a comprehensive understanding of their experiences. Data collection involved participants from various age groups and professional backgrounds across different areas of Pakistan. The interviews were conducted using a mobile app, which provided flexibility in reaching out to a broader range of participants. However, recognizing the limitations of mobile access among some visually impaired individuals, additional one-on-one interviews were also conducted to ensure a more inclusive representation of perspectives. This dual approach aimed to mitigate selectivity and potential overrepresentation of participants who had better access to mobile services. Since the research investigated the implementation of laws, which applies nationwide, the entire country of Pakistan served as the research context for this study.

The participants in the study included individuals from diverse professional designations, reflecting the varied experiences and challenges faced by blind individuals in Pakistan.

3.4 Data Collection Method:

The collection of data is a crucial component of the research design, requiring the researcher to demonstrate creativity and careful consideration. Questionnaires, interviews, and observations are commonly used data collection techniques (Anisworth, 2020).

In this study, I employed two primary tools for data collection: direct observation and individual interviews. These tools were chosen due to their participatory nature, allowing for a more in-depth understanding of the subject matter. Through conducting interviews with a diverse range of participants valuable data was collected for analysis and interpretation. These interviews served as a means to gather firsthand insights and perspectives on the research topic, enabling a comprehensive exploration of the subject matter.

The data collected from the semi-structured interviews encompass a wide range of information. To ensure comprehensive coverage of the topics related to the inclusiveness of visually impaired individuals in the field of education and the accessibility of public infrastructure, an interview guide was developed. Each research participant was individually asked approximately 20 to 30 questions, organized into nine broad categories.

3.5 Unit of Data Collection:

In my research, a diverse range of participants representing various stakeholders were engaged. These stakeholders included individuals from different educational levels (9th and 10th-grade students, school teachers, college students, college teachers, university students, and university teachers), as well as special education teachers from both government and private institutions. Furthermore, participants from diverse professional backgrounds such as government employees, private sector employees, civil servants, judges, businessmen, disabled rights activists, housewives, and daily wage workers were included. While this diversity allowed for a comprehensive exploration of perspectives, it's important to acknowledge that the study primarily focuses on understanding the perceptions and experiences of visually impaired individuals related to policy gaps and practices. Through this focus, the research aims to provide an objective evaluation of the existing policies and practices. It is also recognized that this participant group is heterogeneous, which is taken into consideration when analyzing the findings.

3.6 Sampling Strategy:

This research study involved the selection of 60 visually impaired participants from different parts of Pakistan. The convenience sampling method was employed, allowing for the convenient selection of participants. To overcome geographical constraints, mobile app-based interviews were conducted, enabling access to participants regardless of their location. As someone who is part of the blind community, I utilized my personal understanding and knowledge to purposefully choose individuals who were readily available and could offer valuable perspectives. By combining **convenience and purposive** sampling techniques, the research was able to gather insights from a diverse range of participants, leading to enriched findings.

Convenience sampling, a non-probability sampling technique, allowed me to select participants based on their accessibility and availability. This approach was particularly advantageous considering the mobility issues and limited access to assistive devices faced by visually challenged individuals. It facilitated the inclusion of participants who could conveniently take part in the research, contributing their unique experiences and perspectives.

In addition to convenience sampling, I also utilized purposive sampling, which is also known as judgment sampling. This method involved using my expertise to intentionally select a sample that would be highly relevant and beneficial to achieving the research objectives. Through purposive sampling, I aimed to include individuals who could provide valuable insights and enrich the understanding of the challenges faced by visually challenged individuals.

3.7 Research design:

In this research, both unstructured and semi-structured interviews were employed to investigate the implementation gaps in laws pertaining to the rights of visually impaired individuals, with a specific focus on their inclusiveness in education and accessibility to public infrastructure. A total of 60 visually impaired participants from various regions

across Pakistan were interviewed. To ensure a diverse representation, a combination of convenience and purposive sampling methods was utilized.

Convenience sampling was used to select participants who were readily available and accessible for interviews, including university and college students, as well as government employees. Additionally, purposive sampling was employed to encompass a wide range of backgrounds and perspectives. This included school, college, and university teachers, government employees, civil servants, and disabled rights activists.

The interviews provided valuable in-depth insights and open-ended discussions, enabling a comprehensive understanding of the challenges faced by visually impaired individuals and the real-life implications of existing laws and policies. By collecting individual narratives, researchers could uncover specific instances of implementation gaps and assess their impact. These interviews also helped identify systemic issues within the implementation process and explored social, cultural, and environmental factors influencing the experiences of visually impaired individuals.

The questions posed during the interviews covered a wide array of topics relevant to inclusion and accessibility, such as the availability of trained teachers, access to educational resources, participation in sports, employment opportunities, and the accessibility of public infrastructure. Additionally, participants shared their perspectives on potential reforms for the welfare of visually impaired individuals in Pakistan.

To ensure comprehensive representation, interviews were conducted one-on-one via various means, including Zoom meetings and phone calls, considering the diverse backgrounds and geographic locations of the participants. Subsequently, the collected data underwent qualitative analysis, focusing on two main themes: inclusiveness in education and accessibility of public infrastructure. Thematic analysis unveiled recurring patterns, concepts, and ideas within the data, providing a deeper understanding of the research topic without unnecessary repetition.

CHAPTER 4

Legislations and Policies: A Content Analysis

This chapter utilizes a combination of content analysis and the analysis of PESTL (Political, Economic, Sociological, Technological and Legal) factors to comprehensively evaluate the current status of individuals with visual impairments in the European Union (EU), India, Pakistan, and the United States of America (USA). Through content analysis, the legislations promulgated by these jurisdictions for the protection of the rights of visually impaired individuals are examined in relation to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). This analysis provides valuable insights into the extent to which these countries have aligned their legal frameworks with the UNCRPD, and identifies areas of strength and potential areas for improvement. Additionally, the PESTL analysis explores the external factors influencing the lives of visually impaired individuals, including political, economic, sociological, technological, legal, and environmental aspects. By integrating both content analysis and the PESTL approach, this chapter presents a comprehensive understanding of the current landscape, challenges, and opportunities for enhancing the rights, inclusion, and overall well-being of individuals with visual impairments in these jurisdictions.

4.1 United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and Implementation gaps:

The UNCRPD is an international treaty that promotes the rights and inclusion of persons with disabilities, including visually impaired people. It recognizes the importance of accessibility as a fundamental right and emphasizes the need to remove barriers and ensure equal access to various aspects of life.

Under the UNCRPD, Article 9 specifically addresses accessibility. It emphasizes the obligation of states to take appropriate measures to ensure that persons with disabilities have access to the physical environment, transportation, information, and communications, including information and communication technologies (ICTs). This includes promoting

the design, development, production, and distribution of accessible formats of information and communications for persons with visual impairments.

However, despite the ratification of the UNCRPD by many countries, including those within the European Union, there exist significant differences in the implementation of policies and legislations related to visually impaired individuals.

The UN Committee on the Rights of Persons with Disabilities conducted reviews on the implementation of the Convention on the Rights of Persons with Disabilities in various countries, with a focus on the rights and inclusion of visually impaired people. Concerns and recommendations were highlighted for each country, addressing specific challenges faced by visually impaired individuals. These included issues such as access to inclusive tertiary education for women with intellectual disabilities, incorporation of the human rights-based concept of disability into domestic laws, provision of individualized support services to visually impaired families, and ensuring equal opportunities and accessibility in various areas of life. The Committee's findings emphasized the need for each country to take necessary measures to promote the rights, well-being, and full inclusion of visually impaired individuals (UN, 2019, 2022, 2023).

4.2 Legal Landscape for Visually Impaired Individuals: A Comparative Analysis across Pakistan, India, USA, and EU:

As signatories of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), Pakistan, India, the USA, and countries in the European Union (EU) have promulgated different laws that align with the principles of the UNCRPD. However, it is important to recognize that due to various factors such as economic conditions, cultural differences, and other contextual issues, the implementation and ground realities of these laws may differ in each country. While there are commonalities in their legal frameworks, the actual experiences and outcomes for visually impaired individuals may vary based on the specific circumstances and challenges faced in each country. Nonetheless, the shared commitment to align national laws with the UNCRPD reflects a global effort to improve the lives of visually impaired people and promote their rights and inclusion.

4.2.1 Europe:

In Europe, the inclusion of blind and visually impaired people is addressed through various legislations and directives at both the European Union (EU) level and individual country levels. Key legislations and laws include the Disability Equality Act (Behindertengleichstellungsgesetz, BGG) in Germany, the Law for the Equality and Citizenship of Persons with Disabilities (Loi pour l'égalité réelle des chances, la participation et la citoyenneté des personnes handicapées) in France, the Discrimination Act (Diskrimineringslag) in Sweden, the Law on Equal Opportunities, Non-Discrimination, and Universal Accessibility for People with Disabilities (Ley de igualdad de oportunidades, no discriminación y accesibilidad universal de las personas con discapacidad) in Spain, Law 104/1992 in Italy, the Equal Treatment Act (Algemene Wet Gelijke Behandeling) in the Netherlands, the Disability Act 2005 in Ireland, and the Non-Discrimination Act (Yhdenvertaisuuslaki) in Finland. These legislative measures reflect the commitment of European countries to ensure equal rights, accessibility, and non-discrimination for blind and visually impaired individuals.

These laws aim to ensure equal participation, non-discrimination, accessibility, and social inclusion for blind and visually impaired individuals in areas such as employment, education, transportation, and public services. In addition, European countries have ratified the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and have implemented directives like the EU Directive on Accessibility and the EU Web Accessibility Directive. National accessibility standards further ensure accessibility in various aspects of daily life. These measures collectively reflect a shared commitment to inclusivity and equal treatment for visually impaired individuals throughout Europe.

However, despite these efforts, there are still significant gaps in the implementation of accessibility measures and the provision of inclusive education and employment opportunities for visually impaired individuals in Europe. For instance In the UK, where online platforms play a crucial role in education, the lack of accessibility remains a significant barrier for disabled individuals. A staggering 90% of websites fail to meet the minimum single-A compliance level outlined by the Web Content Accessibility Guidelines

(WCAG) set by the World Wide Web Consortium (W3C). The legal requirement is the higher AA standard, which provides a more comprehensive level of accessibility but still falls short of the top compliance level, AAA. Furthermore, when it comes to educational infrastructure, 98.1% of homepages display detectable WCAG failures, underscoring the dire need for improved accessibility measures in these crucial areas (Abilitynet, 2018). Therefore, harmonizing and strengthening policies across European countries could help bridge these gaps.

Apart from this, the implementation of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) in European Union (EU) member countries faces several challenges related to data availability. These challenges include a lack of reliable data that is disaggregated by type of disability, sex, or age. The data collection systems often rely on outdated approaches, such as the medical model of disability. There are differences in methods and systems for assessing disability across regions and different government departments. Another challenge is the limited or insufficient participation of persons with disabilities and their representative organizations in the design and implementation of national census and household surveys. Additionally, there is a lack of systematic use of baselines, indicators, and benchmarks in data collection and analysis activities. These challenges highlight the need for improved data collection processes that are inclusive, up-to-date, and involve the active participation of persons with disabilities to effectively monitor and address their rights and needs as outlined in the UNCRPD (EUAFR, 2023).

4.2.2 India:

In India, several legislations and programs have been implemented to protect and promote the rights of blind and visually impaired individuals. These include:

The Rights of Persons with Disabilities Act, 2016: This comprehensive legislation recognizes blindness as a specific disability and ensures the rights of blind individuals. It emphasizes inclusive education, accessible information and communication, and provision of assistive devices and aids.

The Copyright Act, 1957 (Amendment 2012): This amendment addresses the unique needs of visually impaired individuals by facilitating the creation and distribution of accessible format copies of copyrighted works, promoting inclusiveness and equal opportunities.

The Rehabilitation Council of India Act, 1992: This legislation establishes the Rehabilitation Council of India (RCI) to regulate and standardize training and education in rehabilitation. It ensures well-trained professionals and advances support for visually impaired individuals.

The Sarva Shiksha Abhiyan (SSA): SSA is a government program that promotes universal elementary education and emphasizes inclusive education for visually impaired children. It provides aids and support services to ensure equal access to education.

The Accessible India Campaign: Launched in 2015, this campaign aims to create universal accessibility for persons with disabilities, including the visually impaired. It focuses on making public spaces, transportation, and information and communication technologies accessible and barrier-free.

These legislations and programs are crucial in promoting the rights and inclusion of blind and visually impaired individuals in India. Effective implementation and awareness are essential to ensure their full impact on the lives of visually impaired individuals across the country. However, approximately 45% of Indian Open University websites lack primary accessibility features required for persons with disabilities. Only 55% of the open universities were found to provide two to four out of the five accessibility mechanisms studied. The Guidelines for Indian Government Websites (GIGW) developed by the Government of India recommends compliance with the Web Content Accessibility Guidelines (WCAG 2.0) to ensure digital accessibility. The study highlights the need for Indian Open Universities to improve their website accessibility to ensure inclusion in higher education for persons with disabilities (Kumar, 2021).

Moreover, the 8th All India School Education Survey (AISES) conducted by NCERT revealed significant shortcomings in schooling facilities for children with disabilities. Only 1.32% of teachers have received training in inclusive education, and a low percentage of

schools have essential accessibility features such as handrails, adapted labs, and adapted toilets. The availability of assistive tools and technologies is also limited. This lack of accessibility poses challenges to the holistic growth of disabled children and contributes to the preference for open education. The poor employment prospects for disabled individuals further emphasize the need for accessibility and inclusive practices. Addressing attitudinal barriers, stigma, and stereotypes is essential to enable inclusion in education and employment for persons with disabilities (Kuppusamy and Balaji, 2023).

The urgent need to implement approved laws in full spirit is crucial for improving the lives of visually impaired people in India. Despite the existence of legislations such as the Rights of Persons with Disabilities Act, 2016, and the Copyright Act, 1957 (Amendment 2012), there are still significant gaps in accessibility and inclusion. Limited accessibility features on Indian Open University websites and inadequate schooling facilities for children with disabilities demonstrate the pressing need for comprehensive implementation. By ensuring full compliance with accessibility guidelines, providing necessary assistive devices, and promoting inclusive education and employment opportunities, the lives of visually impaired individuals can be significantly improved, fostering a more inclusive and equitable society.

4.2.3 United States:

In the United States, the rights and inclusion of blind and visually impaired individuals are protected under various laws, including the Americans with Disabilities Act (ADA), Section 508 of the Rehabilitation Act, the Individuals with Disabilities Education Act (IDEA), and the Telecommunications Act of 1996.

The ADA prohibits discrimination and requires reasonable accommodations to ensure equal opportunities and access for individuals with disabilities, including those with visual impairments. Section 508 focuses on the accessibility of electronic and information technology (EIT) in federal agencies. IDEA ensures that children with disabilities, including visual impairments, receive appropriate educational services and accommodations. The Telecommunications Act requires telecommunication services and equipment to be accessible.

Between 2019 and 2021, there were significant improvements in key indicators of accessibility and opportunities for visually impaired individuals in the United States. While the overall percentage of civilians with disabilities slightly increased, progress was seen in narrowing the gaps between people with and without disabilities. The Disabling Environments Index, which measures local area accessibility, decreased, indicating better conditions for independent living. The gap in institutionalization rates narrowed, and there were improvements in educational attainment, both in high school and college. Employment rates and earnings for individuals with disabilities also showed positive trends. Although challenges persist, such as the poverty rate gap and differences in health insurance coverage, these findings demonstrate positive steps towards enhancing accessibility and inclusivity for visually impaired individuals in education and public infrastructure (Houtenville et al., 2023). However, despite these legal protections, challenges remain in fully implementing and enforcing accessibility standards across different sectors in the United States. This includes areas such as digital accessibility, educational support, and employment opportunities for visually impaired individuals.

4.2.4 Pakistan

Pakistan has implemented several legislations and policies to protect the rights of persons with disabilities, including those with visual impairments. The Disabled Persons (Employment and Rehabilitation) Ordinance, introduced in 1981, laid the foundation for promoting equal opportunities and rehabilitation for disabled individuals. The National Policy for Persons with Disabilities, established in 2002, further emphasized the inclusion and welfare of persons with disabilities across various sectors.

At the federal level, the ICT Rights of Persons with Disabilities Act was enacted in 2020, specifically addressing the rights and needs of individuals with disabilities in the Islamabad Capital Territory (ICT). This legislation focuses on equal opportunities, accessibility, and social inclusion, aiming to ensure that persons with disabilities have access to education, healthcare, vocational training, and employment prospects. It also mandates the development of accessible digital content and platforms, promoting equal access to information and communication technologies.

Moreover, each province in Pakistan has introduced its own legislation to protect the rights of persons with disabilities. In Punjab, the Punjab Empowerment of Persons with Disabilities Act was enacted in 2022, prioritizing equal opportunities, accessibility, and social inclusion for individuals with disabilities. Sindh province passed the Persons with Disabilities Act in 2018, while Balochistan enacted the Balochistan Disability Act in 2017. In Khyber Pakhtunkhwa (KPK) province, the Khyber Pakhtunkhwa Disabled Persons (Employment and Rehabilitation) (Amendment) Act of 2012 focuses on employment and rehabilitation opportunities for disabled individuals, including those with visual impairments. These provincial laws aim to ensure equal opportunities, access to services, and support for persons with disabilities, including provisions for education, healthcare, vocational training, and employment.

However, despite these legal protections the visually impaired individuals in Pakistan face numerous challenges that hinder their daily lives and overall inclusion. Limited accessibility in public spaces, transportation systems, and infrastructure makes navigation and independent participation difficult for them. Education barriers arise due to a lack of inclusive schools, specialized resources, trained teachers, and assistive technologies, hindering visually impaired students' access to quality education (Khalid et al., 2023). Employment opportunities are limited by a lack of inclusive workplaces, discriminatory attitudes, and inadequate accommodations. Social stigma, discrimination, and negative societal attitudes contribute to exclusion and unequal treatment. Insufficient availability of rehabilitation services, orientation and mobility training, and support services further restrict independence and well-being. Although Pakistan has laws protecting the rights of disabled individuals, including the visually impaired, challenges remain in their effective implementation and enforcement. Addressing these issues necessitates collaborative efforts from the government, civil society, and relevant stakeholders to enhance accessibility, promote inclusive education and employment, raise awareness, combat stigma, and ensure the effective implementation of disability rights laws throughout the country (Ali and Abdullah, 2023).

4.3 Where Pakistan Stands: A Comparative Analysis of Legislation on Visual Impairments:

In the pursuit of ensuring the rights and well-being of individuals with disabilities, Pakistan, India, the European Union (EU), and the United States of America (USA) have all enacted comprehensive legislations in alignment with the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). These countries have recognized the importance of establishing legal frameworks that promote equity, inclusivity, and accessibility for individuals with disabilities, including those with visual impairments.

Pakistan has implemented laws such as the Disabled Persons (Employment and Rehabilitation) Ordinance (1981) and the National Policy for Persons with Disabilities (2002) to address various aspects of disability rights. These laws are complemented by the ICT Rights of Persons with Disabilities Act (2020) and the Punjab Empowerment of Persons with Disabilities Act (2022) in specific regions. They encompass equal opportunities, productivity, accessibility, healthcare, vocational training, employment, and social inclusion. These laws aim to empower individuals with visual impairments and enable their active participation in society.

Similarly, India has enacted the Rights of Persons with Disabilities Act (2016), which focuses on ensuring equal opportunities, accessibility, and inclusivity for individuals with disabilities, including those with visual impairments. The EU has established the European Accessibility Act (2019), which emphasizes accessibility requirements for goods and services, including information and communication technologies, to benefit individuals with disabilities. The USA has the Americans with Disabilities Act (ADA) (1990), a landmark legislation that prohibits discrimination and ensures equal opportunities for individuals with disabilities, including those with visual impairments.

Despite contextual variations, the fundamental principles and objectives of these laws remain consistent across these countries. They all aim to create inclusive societies that value diversity and empower individuals with disabilities, including visual impairments. The legislations emphasize equal access to information and communication technologies,

social inclusion, special arrangements in education and workplaces, and the development of accessible digital platforms.

It is worth noting that while there may be nuanced differences in the specific laws and their implementation, the overall commitment and focus on equity, inclusivity, accessibility, and social welfare are evident across these countries. The shared vision of providing equal opportunities and empowering individuals with visual impairments is at the core of these legislative efforts.

4.4 Role of PESTL factors in implementation of laws in Pakistan:

The implementation of laws for blind people in Pakistan faces significant gaps and challenges stemming from various factors, including political, economic, sociological, technological and legal dimensions. The information presented in the preceding section is based on the insight drawn from the forthcoming analysis of interviews conducted with 60 visually impaired individuals from Pakistan. These interviews were a crucial component of the research, providing firsthand insights into the challenges faced by the visually impaired community. While specific references and detailed findings from these interviews will be extensively documented in the subsequent chapter on 'Data Analysis and Findings,' this section aims to provide the role of PESTL factors related to the implementation of laws for visually impaired individuals in Pakistan.

Politically, Pakistan's landscape is characterized by instability and polarization, with shifting priorities and limited resources often hindering the effective implementation of disability-related legislation. Economic constraints, including the country's reliance on external financial assistance and its continuous engagement with the International Monetary Fund (IMF), make it challenging to allocate sufficient funds and resources to adequately support and accommodate the needs of the visually impaired community.

Sociologically, Pakistan grapples with societal issues such as a lack of widespread education, high unemployment rates, and deeply entrenched patriarchal norms. These factors contribute to the marginalization and exclusion of individuals with visual

impairments, limiting their access to education, employment opportunities, and social integration.

Technologically, Pakistan faces challenges in terms of infrastructure and the digital divide, which directly impact the accessibility of information and communication technologies for the blind. Limited availability of assistive technologies, lack of inclusive digital platforms, and inadequate internet connectivity further impede the effective implementation of laws aimed at empowering visually impaired individuals.

From a legal standpoint, Pakistan's legal structure is ranked among the lowest globally, ranked 129th out of 140 countries. Weak enforcement mechanisms, limited awareness of disability rights, and the absence of stringent measures to ensure compliance contribute to the gaps in the implementation of laws for the blind.

These multi-faceted challenges underscore the need for concerted efforts and comprehensive strategies to address the gaps in implementing laws for blind people in Pakistan. It requires political stability, focused economic development, investment in inclusive education and vocational training, promotion of assistive technologies, strengthening of the legal framework, and environmental sustainability measures. Only by effectively addressing these factors can Pakistan work towards ensuring equal opportunities, accessibility, and social inclusion for individuals with visual impairments, fostering a society that values and empowers all of its citizens.

4.5 Conclusion:

In conclusion, the comparative analysis of legislation on visual impairments in Pakistan, India, the EU, and the USA highlights a shared commitment to promoting the rights and well-being of individuals with disabilities, including visual impairments. While the specific laws and provisions may vary, the overarching objective of creating inclusive and empowering environments remains consistent. These countries recognize the importance of equity, inclusivity, accessibility, and social welfare in their legal frameworks, aiming to empower individuals with visual impairments and ensure their active participation in society.

In the United States, a relatively higher standard of living and established disability rights legislation contribute to a favorable environment for visually impaired individuals, with robust accessibility standards and well-equipped educational institutions. However, challenges such as employment discrimination and affordability of healthcare and assistive technologies persist. In the European Union, a diverse range of member states with varying economic development levels leads to disparities in accessibility and support, with affluent countries offering advanced infrastructure. India grapples with pronounced economic disparities, affecting access to quality education and inclusive workplaces, especially in rural areas. In Pakistan, a developing country with financial constraints, limited resources and underdeveloped infrastructure hinder inclusion and equal opportunities, necessitating collaborative efforts from the government and civil society to address these challenges and promote inclusivity.

CHAPTER 5

Data Analysis and Findings

5.1 Background

This chapter presents the analysis of interviews that were conducted with 60 visually impaired individuals in Pakistan, utilizing a thematic analysis technique. The interviews aimed to explore the perspectives of visually impaired individuals on two main topics: inclusive education and accessible public infrastructure.

Inclusive education ensures equal access to education for visually impaired individuals, providing necessary accommodations and support. Accessible public infrastructure focuses on creating physical and digital environments that accommodate the needs of visually impaired individuals.

Despite the recognition of these principles, challenges and barriers exist. Limited resources, lack of awareness, and inadequate policies hinder the inclusion and accessibility of visually impaired individuals.

To gain a deeper understanding, semi-structured interviews were conducted with visually impaired individuals. Semi-structured interviews allow for flexibility and open-ended exploration of topics while maintaining a basic structure. This approach allows participants to share their experiences, perspectives, and challenges related to inclusive education and accessible public infrastructure in their own words.

The use of semi-structured interviews is important as it enables researchers to capture rich and nuanced data. It allows participants to express their thoughts and experiences freely, providing insights into their unique perspectives and highlighting specific issues they face. The open-ended nature of the interviews encourages participants to share details and elaborate on their experiences, uncovering valuable information that may not have been captured through more structured methods.

Table 5.1   Themes and subthemes

Themes	Subthemes
State of Inclusiveness of visually impaired people in the field of Education	• Admission in educational institutes • free pre-primary to higher education • Participation in sports, cultural and recreational activities • special educational institutions • Reasonable and appropriate accommodation • Teacher's training • Accessible reading material and mode of exam
State of accessibility of public infrastructure for visually impaired people	• Right to privacy • Ease of mobility • Ease of access • Accessibility and equity in the employment

5.2 Qualitative Analysis

Thematic analysis was utilized as the primary analytical approach to identify common patterns and themes within the interview data. Thematic analysis is a qualitative research method that allows for a systematic identification of key themes and patterns within the data, providing valuable insights into the state of inclusiveness in the education system and the accessibility of public infrastructure for visually impaired individuals in Pakistan.

The first theme explored in the interviews was inclusive education. Within this theme, various aspects were examined, including the challenges faced by visually impaired individuals in gaining admission to educational institutes, the provision of free education, the opportunities for participation in sports and cultural activities, the role of special education institutions, accommodations provided to visually impaired students, teacher training, and the accessibility of reading materials and examination methods.

The second theme focused on the accessibility of public infrastructure for visually impaired individuals. This theme encompassed several dimensions, including the rights to privacy, ease of mobility, accessibility of facilities and services, availability of digital resources, and equitable employment opportunities.

5.3 State of Inclusiveness of visually impaired people in the field of Education

The purpose of conducting a qualitative analysis of unstructured interviews about the state of inclusiveness of visually impaired people in the field of education is to assess the present state of implementation of laws related to the rights of blind people and identify gaps in their implementation. By gathering insights directly from visually impaired individuals, this analysis aims to examine their experiences and perspectives regarding the extent to which existing laws and policies are being effectively implemented in educational settings. The below graph entails the list of questions, which, were asked from the interviewees:

Table 5.2 Inclusiveness of visually impaired people in the field of Education

1. Are you aware of any specific laws or legislations that protect the rights of visually impaired individuals in the context of education?
2. Can you describe your experience with the admission process in educational institutes as a visually impaired individual?
3. What are the key challenges you have faced in accessing free education?
4. How have you been able to participate in sports, cultural, and recreational activities? What barriers have you encountered?
5. Can you share your experiences with special educational institutions? How have they supported your educational journey?
6. What reasonable and appropriate accommodations have been provided to you in educational settings? Are there any accommodations you feel are lacking?
7. How do you perceive the quality of teacher training in addressing the needs of visually impaired students?
8. Have you encountered any difficulties accessing reading materials? How accessible are the exam modes for visually impaired individuals?

9. Have you encountered any instances where your rights as a visually impaired individual were violated within an educational setting? If so, how did you address or resolve the situation?

10. Have you utilized any student support centers or services on campus? If so, how would you rate their accessibility for visually impaired individuals?

11. How accessible are websites and online platforms in terms of providing information and resources for visually impaired individuals?

12. Have you encountered any challenges accessing and utilizing library resources as a visually impaired individual?

5.3.1 Admission in educational institutes

When queried about their familiarity with laws or legislations safeguarding the rights of visually impaired individuals in the realm of education, it became evident that only a few educated individuals were knowledgeable about such legal provisions. This highlights a significant knowledge gap concerning the existing legal frameworks aimed at ensuring inclusive admission processes for visually impaired individuals. As one respondent poignantly remarked:

"In a country plagued by lawlessness, knowing about laws becomes seemingly unnecessary."

Furthermore, participants shared their personal experiences pertaining to the admission process in educational institutes as visually impaired individuals, providing valuable insights into the challenges encountered during this journey. Some participants voiced

difficulties encountered due to inaccessible application forms, while others noted the lack of awareness among admission staff regarding appropriate accommodations for visually impaired students. Additionally, several participants highlighted the limited availability of support services throughout the admission process.

These firsthand accounts shed light on the unique experiences and obstacles faced by visually impaired individuals seeking admission. One participant expressed their disappointment, revealing:

"I was denied admission to a higher secondary school on the basis that stairs would be problematic for me."

Another participant shared their encounter with discrimination, stating:

"I was denied admission in three private colleges simply because I was the first visually impaired applicant."

A third participant vividly described the challenges they faced in securing admission at a commerce college in Lahore, explaining:

"The administration lacked understanding about accommodating my needs."

Moreover, participants also highlighted the reluctance of government colleges to admit visually impaired students. These remarks emphasize the systemic barriers and biases that exist within the educational system, hindering the access and opportunities for visually impaired individuals.

5.3.2 Free pre-primary to higher education

When examining the challenges faced in accessing free education, particularly in the context of free pre-primary to higher education, it is evident that several individuals encountered significant hurdles despite the existence of laws safeguarding the rights of persons with disabilities. Regrettably, only a small number of educated individuals

displayed awareness of these legal provisions, highlighting a notable knowledge gap concerning the entitlement to free education.

One participant shared their personal experience, emphasizing the difficulties they encountered in navigating the education system:

"I got free primary education in a government school which was specially designed for visually impaired students. However, when I took admission in a private middle school, I had to file various applications to exempt my fee."

Another participant vividly described their journey through higher education, recounting the arduous process they endured:

"Fee exemption is written in the laws for disabled students, but I had to take my case to the higher authorities of the university to pass the legislation for exempting my fee. Even when the matter could not be resolved, I filed a complaint with the federal ombudsman and fought my case there. Finally, my complaint was resolved through their decision, and my fee was exempted."

These firsthand accounts serve as poignant reminders of the challenges faced by visually impaired individuals in accessing free education. Despite the existence of laws, the implementation and enforcement of these provisions appear to be lacking, resulting in obstacles for students seeking their entitlement to free education.

The participants' remarks clearly express their frustration with the current state of affairs, where legislation exists but practical relief remains elusive:

"Laws have been legislated, but no implementation is there to provide relief to visually impaired students."

5.3.3 Participation in sports, cultural and recreational activities

When examining the participation of visually impaired individuals in sports, cultural, and recreational activities, it becomes apparent that many individuals have faced significant barriers that have impeded their full engagement. Despite their strong desire to participate and be part of these activities, they have encountered various challenges that hinder their involvement and limit their opportunities.

One participant shared their personal experience, highlighting a sense of deprivation and exclusion when their peers were engaged in sports activities:

"I often felt deprived when my best friends were playing sports in schools, and due to my visual impairment, I could not participate in games. They never allowed me to take part in sports, using the excuse that I might hurt myself."

This sentiment reflects a common experience where visually impaired individuals are often overlooked or excluded from sports due to safety concerns and misconceptions about their abilities. Such attitudes can lead to feelings of isolation and a lack of inclusivity.

Another participant shed light on the inaccessibility of recreational places, which further restricts their participation and enjoyment of such activities:

"Recreational places are not accessible for us. Nobody is there to inform us about the special features of parks, and even describing the beauty of nature is a challenge for us."

This remark underscores the physical and informational barriers faced by visually impaired individuals when accessing recreational spaces. The lack of accessibility measures, such as tactile maps, audio guides, or knowledgeable staff, deprives them of the opportunity to fully experience and appreciate these environments.

Additionally, it was noted that visually impaired students often face difficulties in being accepted as part of a team during sports activities:

"Visually impaired students are not easily accepted as part of the team during sports activities."

This observation reflects the social and attitudinal barriers that hinder the inclusion of visually impaired individuals in sports. Negative stereotypes and a lack of understanding about their capabilities can lead to exclusionary practices, limiting their chances to participate and contribute to team-based activities.

5.3.4 Special educational institutions

When exploring the experiences of visually impaired individuals with special educational institutions, it becomes evident that there are mixed sentiments regarding the support and quality of education provided. While some individuals have found value in these institutions, others have expressed concerns about their effectiveness and the level of support received.

One participant shared their observation regarding special educational institutions, highlighting their inadequate provision of education for special needs students:

"There are special educational institutions for visually impaired students, but many of them are not working properly and do not provide adequate and appropriate education to special needs students."

This remark points to the challenges faced by visually impaired individuals in accessing quality education within special educational institutions. It raises questions about the capacity of these institutions to effectively cater to the unique educational needs of visually impaired students.

Another participant expressed dissatisfaction with the motives of these special educational institutions, suggesting that their focus may be more on financial gain rather than serving the marginalized community:

"These special educational institutions are NGOs that are busy making money instead of serving this marginalized community."

This comment sheds light on the potential misalignment between the mission of special educational institutions and the actual experiences of students. It raises concerns about the prioritization of financial interests over the educational well-being of visually impaired individuals.

Furthermore, a participant shared their personal experience of acquiring education in a special educational institution but expressed dissatisfaction with the institution's approach to supporting differently-abled students:

"I have acquired education in a special educational institution, but personally, I am not satisfied with their way of dealing with differently abled students."

This individual's experience highlights the importance of an inclusive and supportive environment within special educational institutions. It emphasizes the need for institutions to understand and address the unique needs and challenges faced by visually impaired students to provide effective educational support.

These remarks underscore the complexities surrounding special educational institutions for visually impaired individuals. While some individuals have had positive experiences and received valuable support, others have raised concerns about the quality of education, motives of the institutions, and the overall satisfaction with their educational journey.

5.3.5 Reasonable and appropriate accommodation

When examining the experiences of visually impaired individuals in educational settings, it becomes evident that there are challenges in accessing reasonable and appropriate accommodations. While some individuals have received necessary support, many have faced difficulties in acquiring the accommodations they require for a fulfilling educational journey.

One participant expressed the challenges they encountered in obtaining necessary accommodations within educational institutes:

"I had to face difficulty to acquire any necessary accommodation in educational institutes."

This remark highlights the barriers faced by visually impaired individuals when seeking accommodations in educational settings. It underscores the need for a streamlined and accessible process to ensure that students' needs are met effectively.

Furthermore, it was noted that there is a lack of awareness among teachers and higher administration regarding the accommodations required for visually impaired students:

> *"There is a lack of awareness in teachers and higher administration of educational institutes, making it very tough to get special accommodations for students like me."*

This observation sheds light on the importance of raising awareness among educational staff and administrators about the specific needs and accommodations necessary for visually impaired individuals. It emphasizes the significance of training and education to ensure a supportive and inclusive learning environment.

Additionally, the absence of effective implementation of laws and regulations was highlighted as a major hurdle in acquiring reasonable accommodations for visually impaired students. From note-taking to accessing exams in an accessible format, the challenges are immense:

> *"Absence of implementation of laws is a big hurdle to acquire reasonable accommodations for visually impaired students. From note-taking to taking exams through accessible format, it is extremely challenging."*

This comment underscores the need for proper implementation and enforcement of existing laws and regulations to ensure that visually impaired students can access the reasonable accommodations they require. It draws attention to the complexity of providing accommodations and the importance of comprehensive support systems within educational institutions.

Considering the experiences shared by participants, it is clear that there are gaps in the provision of reasonable and appropriate accommodations for visually impaired individuals in educational settings. The challenges range from a lack of awareness and understanding

among staff and administration to the absence of effective implementation of laws and regulations.

5.3.6 Teacher's training

When examining the quality of teacher training in addressing the needs of visually impaired students, it becomes apparent that there are significant gaps and challenges. The experiences shared by visually impaired individuals shed light on the shortcomings in teacher training programs and the need for improvement in this area.

One participant shared their personal experience, recalling the lack of understanding and support they encountered from teachers:

"How will you complete your coursework? I was asked these types of questions various times during higher secondary and higher education institutions by the teachers."

This remark highlights the lack of awareness and preparedness among teachers when it comes to addressing the specific needs of visually impaired students. It emphasizes the need for comprehensive training programs that equip teachers with the knowledge and skills to effectively support visually impaired students in their educational journey.

Another participant expressed their disappointment with the lack of knowledge and understanding displayed by teachers in the classroom:

"Teachers do not know how to deal with a special student in the classroom."

This statement underscores the necessity for specialized training that enables teachers to create an inclusive and supportive learning environment for visually impaired students. It emphasizes the importance of equipping teachers with strategies and techniques that can facilitate effective communication, provide appropriate accommodations, and promote the overall well-being of visually impaired students.

Additionally, it was noted that there was a lack of proactive support from teachers in accessing reading materials:

"I was never offered any support by any teacher for accessing the reading material."

This comment highlights the need for teachers to be proactive in providing accessible materials and resources for visually impaired students. It emphasizes the importance of adapting teaching methods and materials to meet the diverse learning needs of visually impaired students.

The experiences shared by participants indicate that the quality of teacher training in addressing the needs of visually impaired students falls short in many cases. The lack of awareness, understanding, and proactive support from teachers underscores the necessity for comprehensive training programs that equip teachers with the knowledge, skills, and tools necessary to effectively cater to the needs of visually impaired students.

5.3.7 Accessible reading material and mode of exam

When examining the accessibility of reading materials and exam modes for visually impaired individuals, it becomes evident that significant challenges exist. According to one participant:

"Braille books are only available in special education institutions,"

This is indicating the limited availability of accessible reading materials for visually impaired individuals. Another participant highlighted the difficulty in acquiring Quran Majeed in Braille, stating, "Nowadays, it is challenging to acquire Quran Majeed written in braille."

In terms of exam modes, participants shared their experiences of being denied the opportunity to utilize accessible formats. One participant recounted their time at university, stating:

"When I was in university, I was denied to take exams through a computer."

Similarly, when applying for competitive exams through the Punjab Public Service Commission, another participant faced the same denial, indicating the existing barriers in accessing suitable exam modes for visually impaired individuals.

Regarding websites and online platforms, it was noted that while a few have implemented accessibility features, the majority still lack proper measures. As one participant expressed:

"While few websites may have implemented accessibility features to accommodate individuals with visual impairments, most of the websites still lack proper accessibility measures."

This suggests that many online platforms and resources continue to present challenges for visually impaired individuals in accessing information and resources independently.

Furthermore, participants highlighted the limited accessibility of library resources for blind people in Pakistan. They emphasized that many libraries lack specialized resources and services, making it difficult for visually impaired individuals to effectively utilize library resources.

5.4 State of Accessibility of Public Infrastructure for Visually Impaired People

The state of accessibility of public infrastructure for visually impaired people in Pakistan is a major issue, with participants in the research highlighting numerous gaps in the implementation of laws and regulations. These gaps reveal significant challenges faced by visually impaired individuals when navigating public spaces. From structural design barriers to negative public behavior, these issues hinder the ability of visually impaired individuals to independently access and utilize public infrastructure. Moreover, a lack of awareness and enforcement of accessibility laws further compounds the problem, as many establishments and facilities fail to provide the necessary accommodations and support. Participants were asked about the challenges they experience which are discussed below in detail.

Table 5.3 Accessible Public infrastructure for visually impaired People

1. Have you encountered any instances where your personal decisions, family matters, or property issues were interfered with under the assumption that you need constant assistance due to your visual impairment?
2. How does the denial of the right to live as a disabled fetus impact the accessibility of individuals with disabilities in public spaces and infrastructure?
3. What challenges have you encountered when it comes to using public transportation? How accessible do you find the existing transportation infrastructure for visually impaired individuals?
4. What challenges have you encountered in accessing streets, roads, buildings, and public washrooms as a visually impaired individual? Are there any specific features, accommodations, or necessary facilities that are frequently lacking in terms of accessibility?
5. In your experience, how accessible are websites and digital platforms for visually impaired individuals?
6. Can you describe any challenges you have faced in accessing braille materials?

7. What are your thoughts on the overall accessibility of public buildings, hospitals, and recreational facilities for visually impaired individuals?
8. Have you faced any obstacles or discrimination in accessing employment opportunities as a visually impaired individual? Can you share any specific experiences?
9. What are your perceptions of the current level of accessibility and equity in the workplace for visually impaired individuals? Are there any policies or practices that you believe could be implemented to improve the situation?

5.4.1 Right to privacy

When discussing the right to privacy in the context of accessible social and public infrastructure, it is important to address instances where visually impaired individuals have experienced interference in personal decisions, family matters, or property issues. Additionally, we must explore the impact of denying the right to live as a disabled fetus on the accessibility of individuals with disabilities in public spaces and infrastructure.

The experiences shared by the respondents provided valuable insights into the challenges faced by visually impaired individuals regarding their right to privacy. These accounts highlighted the societal barriers and lack of acceptance that often resulted in interference in personal decisions, family matters, and property issues. The views of participants further illustrated the emotional impact of these circumstances, such as feeling alienated within their own families and facing rejection from potential life partners. Additionally, the limitations in accessibility, such as the need for assistance in using ATM machines or accessing menus, contributed to a lack of privacy in their daily lives.

The responses from participants regarding the right of privacy for visually impaired individuals shed light on the challenges they face in personal decisions, family matters, and property issues. One participant shared their personal experience, stating:

"Due to societal fears, my parents never accepted me like their other normal children. They admitted me in a special educational institute and never asked about my well-being for years. I was living their very strange and alone life without the love of my soul mates."

This highlights the lack of acceptance and support from family members due to misconceptions surrounding visual impairment.

Another participant expressed the prevailing prejudice, saying,

"Most of the parents want to avoid any child who is having any kind of disability."

The denial of the right to live as a disabled fetus has a broader impact on the accessibility of individuals with disabilities in public spaces and infrastructure. It perpetuates a narrative that devalues and marginalizes individuals with disabilities, including those with visual impairments. By denying the right to live, society effectively limits the presence and representation of disabled individuals in various spheres of life, including public spaces and infrastructure. This denial reinforces ableism and undermines the principles of inclusion and accessibility. It hampers efforts to create social and physical environments that are truly accessible and inclusive for all individuals, including those with visual impairments.

Participants emphasized the lack of privacy in their lives, citing challenges in accessing public spaces and infrastructure. Regarding personal decisions, family matters, and property issues, some visually impaired individuals have indeed encountered interference under the assumption that they constantly require assistance due to their visual impairment. One participant shared their experience, stating,

"I have faced situations where my personal decisions, such as career choices or relationships, have been questioned or influenced by others due to the perception that I

need constant assistance. This intrusion can be frustrating and undermines my independence and autonomy."

One participant highlighted the difficulties faced by visually impaired individuals in using ATM machines alone, stating,

"Visually impaired people often lack the right to have a private life. Owing to accessibility hurdles, they cannot use ATM machines alone."

The participants also revealed the misconceptions and judgments they encounter. One participant stated,

"We do not have any privacy in our lives, from taking exams to writers, to access the menu in restaurants we have to rely on other people, which eliminate the factor of our privacy."

This highlights the dependence on others for basic tasks, which intrudes upon their privacy and independence.

The opinions also reflect the discrimination faced by visually impaired individuals in various aspects of their lives. One respondent shared their experience in the search for a life partner, stating,

"When my mother was looking for a life partner for me, many families denied accepting me due to my disability."

This highlights the discriminatory attitudes and challenges faced in personal relationships.

5.4.2 Ease of Mobility

When discussing the ease of mobility for visually impaired individuals, it is crucial to address the challenges they face in using public transportation and accessing various public spaces. Participants in our research shared their firsthand experiences, shedding light on the obstacles encountered and the accessibility of existing infrastructure.

In terms of using public transportation, participants highlighted several challenges they have faced. One participant expressed,

"Navigating public transportation systems can be a daunting task for visually impaired individuals. Insufficient or unclear auditory announcements, absence of tactile maps or signage, and lack of trained staff to assist us make it difficult to independently utilize buses, trains, and other modes of public transportation. We often rely on the help of fellow passengers or rely on alternative transportation methods."

Another participant shared their frustrations with the existing transportation infrastructure, stating,

"The accessibility of public transportation for visually impaired individuals is far from satisfactory. Many buses and trains lack the necessary accommodations, such as audio announcements, tactile markers, or braille signage. This lack of accessibility significantly hampers our ability to navigate and travel independently."

In terms of accessing streets, roads, buildings, and public washrooms, participants expressed numerous challenges. One participant highlighted,

"Navigating streets and roads can be perilous for visually impaired individuals due to inadequate tactile markings, absence of audible signals at pedestrian crossings, and poorly maintained sidewalks. It becomes a daily struggle to move around safely and confidently."

Participants also raised concerns about the accessibility of buildings and public facilities. They mentioned challenges such as inaccessible entrances, lack of braille or tactile signage, and insufficient provisions for mobility aids. Inaccessible public washrooms were also a common issue, with participants expressing their frustration at the absence of appropriate facilities for visually impaired individuals.

Specific features, accommodations, and necessary facilities that are frequently lacking in terms of accessibility were also mentioned. Participants highlighted the need for tactile paving and auditory signals at pedestrian crossings, braille signage at public spaces, and

accessible formats for information and announcements. They stressed the importance of inclusive design in architecture and the incorporation of assistive technologies to enhance accessibility.

One participant remarked,

"There is a pressing need for greater attention to the accessibility needs of visually impaired individuals. We require tactile markers, audio cues, and braille signage to navigate public spaces independently. Accessible transportation and well-maintained infrastructure can significantly enhance our mobility and sense of inclusion."

5.4.3 Ease of Access

When considering the accessibility of public infrastructure, websites and digital platforms for visually impaired individuals in Pakistan, the experiences of respondents shed light on significant challenges. As expressed by one participant,

"Websites and digital platforms are often a barrier for us as visually impaired individuals. Many websites lack proper accessibility features, making it difficult for us to navigate and access information independently. It feels like we are excluded from the digital world due to the inaccessible design and lack of alternative text for images."

This sentiment highlights the exclusion and frustration faced by visually impaired individuals when attempting to access online content.

Accessing braille materials poses its own set of challenges for visually impaired individuals in Pakistan. One respondent shared their firsthand experience, stating,

"I have faced numerous challenges in accessing braille materials. It is frustrating to find limited availability of braille books and educational resources. Even acquiring the Quran Majeed in braille has become increasingly difficult. It feels like our right to access information in a format we can read independently is not properly recognized."

These difficulties in accessing braille materials further hinder the educational and informational needs of visually impaired individuals.

When it comes to the overall accessibility of public buildings, hospitals, and recreational facilities, the sentiments expressed by participants indicate a lack of satisfactory provisions. One respondent highlighted,

"The overall accessibility of public buildings, hospitals, and recreational facilities is far from satisfactory. Many places lack proper accommodations and facilities for us as visually impaired individuals. It becomes a struggle to find our way around due to insufficient signage, inaccessible entrances, and a lack of tactile markings. Accessible washrooms and necessary facilities are often missing, which makes us feel excluded and dependent on others."

These challenges in accessing public spaces further limit the independence and inclusion of visually impaired individuals in society.

The views expressed by the respondents collectively emphasize the pressing need for improved accessibility in websites and digital platforms, the availability of braille materials, and the overall accessibility of public spaces. As one participant rightly stated,

"It is disheartening to see the lack of attention given to our needs. Our voices and concerns about accessibility are often overlooked, resulting in a significant disadvantage in accessing essential services and participating fully in society."

These accounts call for greater awareness, understanding, and action from policymakers and society as a whole to ensure equal access and inclusion for visually impaired individuals in Pakistan.

5.4.4 Accessibility and Equity in the Employment

When it comes to the accessibility and equity of employment opportunities for visually impaired individuals, the challenges and discrimination they face are multi-faceted.

Participants in our research shared their personal experiences, shedding light on the obstacles encountered and their perceptions of the current state of affairs.

One participant articulated the hurdles they faced in accessing employment, stating,

"Throughout my job search as a visually impaired individual, I have encountered numerous obstacles and discrimination. Despite possessing the necessary qualifications and skills, employers often hesitated to hire me, questioning my ability to perform tasks effectively. The assumption that my visual impairment would hinder my performance has significantly limited my employment prospects."

Another participant echoed similar sentiments, recounting their experiences during job interviews. He explained,

"I have personally experienced discrimination during job interviews. Employers have expressed doubts about my capabilities, assuming that my visual impairment would impede my ability to fulfill job responsibilities. This bias and lack of understanding about our potential and adaptability make it extremely challenging to secure suitable employment."

The perceptions of visually impaired individuals regarding the current level of accessibility and equity in the workplace were also shared. Participants expressed concerns about the existing situation, highlighting the lack of accommodations and assistive technologies that would facilitate their work. They emphasized that many workplaces are ill-equipped to support their unique needs, hindering their inclusion and advancement.

One participant stated,

"Accessibility and equity in the workplace are still far from satisfactory for visually impaired individuals. Many workplaces lack the necessary accommodations and assistive technologies that would enable us to perform our tasks efficiently. Moreover, there is a general lack of awareness and sensitivity among coworkers and employers, which further hampers our inclusion and professional growth."

In terms of potential solutions, participants suggested various policies and practices that could improve the situation. They emphasized the importance of raising awareness and educating employers and colleagues about the capabilities of visually impaired individuals. They proposed the implementation of workplace accessibility guidelines and the provision of assistive technologies to ensure equal opportunities.

One participant offered their insights, saying,

"Employers should be encouraged to create inclusive environments by providing necessary accommodations such as screen readers, accessible documents, and braille materials. Additionally, training programs and awareness campaigns could help dispel misconceptions and biases surrounding visual impairment. By fostering a supportive and understanding work environment, we can enhance the accessibility and equity of employment for visually impaired individuals."

Overall, the responses from participants shed light on the multifaceted challenges faced by visually impaired individuals in accessing employment opportunities. The need for improved accessibility, equity, and awareness in the workplace is evident. Implementing inclusive policies, providing necessary accommodations, and fostering a supportive and understanding work environment are crucial steps towards ensuring equal employment opportunities for visually impaired individuals.

CHAPTER 6

Discussion, Conclusion and Recommendations

6.1 Discussion

This chapter centers on the thematic analysis of data collected from 60 visually impaired individuals regarding their inclusiveness in education and public infrastructure. It aim to establish connections with the research objective, questions, and conceptual framework. The findings underscore the prevalent denial or lack of inclusiveness, revealing a multitude of factors contributing to these challenges. The analysis reveals recurring themes such as physical barriers, inadequate support systems, societal attitudes, and limited awareness, which collectively hinder the full participation and well-being of visually impaired individuals. By critically examining the data, this discussion section sheds light on the complexities of the issue and emphasizes the need for targeted interventions, policy changes, and attitudinal shifts to create more inclusive environments for visually impaired individuals in education and public infrastructure.

There is a significant knowledge gap among visually impaired individuals regarding the laws and legislations that are specifically designed to protect their rights. Only a few individuals possess a comprehensive understanding of these legal provisions, indicating the pressing need for increased awareness and education in this area. Moreover, during the admission process, visually impaired individuals encounter a multitude of challenges that hinder their access to educational opportunities. Difficulties arising from inaccessible application forms, lack of awareness among admission staff regarding appropriate accommodations for visually impaired students. Furthermore, the limited availability of support services throughout the admission process further exacerbates the difficulties faced by visually impaired individuals. Instances of discrimination and denial of admission based on physical barriers or a lack of understanding from college administrations and the sense of reluctance from government colleges to admit visually impaired students are also faced by these people.

Moreover, in the realm of accessing free education, individuals with visual impairments encounter significant hurdles despite the existence of laws protecting their rights. Unfortunately, only a small number of educated individuals are aware of these legal provisions, highlighting a notable knowledge gap. They have to file multiple applications for fee exemptions and experience arduous process of seeking relief through higher authorities. These firsthand accounts underscore the lack of implementation and enforcement of laws, resulting in obstacles for visually impaired students seeking their entitlement to free education. There is a huge disconnect between legislative measures and practical relief for visually impaired individuals.

Similarly, the participation of visually impaired individuals in sports, cultural, and recreational activities is hindered by significant barriers that impede their full engagement and limit their opportunities. Many individuals face exclusion and feelings of deprivation as they are often not allowed to participate in sports due to misconceptions about their abilities. The inaccessibility of recreational places further restricts their involvement, as they lack information about special features and face physical barriers. Additionally, visually impaired students encounter difficulties in being accepted as part of sports teams, reflecting social and attitudinal barriers.

Likewise, in the realm of special educational institutions for visually impaired individuals, there exists a range of sentiments regarding the support and quality of education provided. While some institutions are working effectively and other are proving futile in supporting these people as these institutions do not adequately cater to the unique educational needs of visually impaired students, raising questions about their capacity and ability to provide appropriate education.

Furthermore, accessing reasonable and appropriate accommodations for blind people in educational institutes presents significant challenges. While some institutes offer necessary support, many neglect to provide the essential accommodations required for a fulfilling educational journey. Moreover, the lack of effective implementation of laws and regulations creates hurdles in obtaining reasonable accommodations, such as note-taking assistance and accessible exam formats. Additionally, while a few websites have integrated

accessibility features, the majority still lack proper measures, impeding independent access to online resources. The limited accessibility of library resources further exacerbates the difficulties faced by visually impaired individuals.

Apart from this, there are significant gaps and challenges that exist in the quality of teacher training when it comes to addressing the needs of visually impaired students. Firstly, there is a noticeable lack of understanding and support from teachers when it comes to providing visually impaired students with accessible reading materials. This hinders their ability to fully engage with the curriculum and access the necessary information for their studies. Moreover, teachers often struggle to effectively address the unique needs of visually impaired students in the classroom setting. This includes adapting teaching methods, materials, and instructional approaches to accommodate different learning styles and abilities. Particularly in subjects that involve calculations and visual representations, such as mathematics or science, teachers face difficulties in delivering lectures. Lastly, the process of administering exams poses additional challenges. Teachers may lack the necessary knowledge and strategies to create fair and accessible assessments that take into account the specific needs of visually impaired students.

On the other hand, in the realm of inclusiveness in social and public infrastructure visually impaired individuals often face interference in personal decisions, family matters, and property issues, impacting their right to privacy in accessible social and public infrastructure. The lack of acceptance and societal barriers result in alienation within families and rejection from potential partners. Limited accessibility, such as the need for assistance in daily activities, further compromises their privacy. Additionally, the denial of the right to live as a disabled fetus perpetuates ableism and undermines inclusivity in public spaces. Visually impaired individuals encounter challenges in accessing public infrastructure, facing interference based on misconceptions about their capabilities. They rely on others for basic tasks, eroding their privacy and independence. Discrimination is also evident in personal relationships, where potential partners may reject them based on disability.

Likewise, visually impaired individuals face challenges in mobility and employment. In terms of mobility, using public transportation poses difficulties due to insufficient auditory announcements, lack of tactile maps or signage, and untrained staff. Inaccessible buses and trains further impede independent travel. Accessing streets, roads, and buildings presents additional obstacles, including inadequate tactile markings, absence of audible signals at pedestrian crossings, and poorly maintained sidewalks. Buildings often lack accessible entrances, braille signage, and appropriate facilities for visually impaired individuals. In the workforce, visually impaired individuals encounter obstacles and discrimination. During job searches and interviews, assumptions about their abilities hinder their prospects. Workplace accessibility and equity are lacking, with limited accommodations and assistive technologies available. Improving accessibility and awareness is essential to provide equal opportunities for visually impaired individuals in both mobility and employment.

6.2 Conclusion

Visually impaired individuals face numerous challenges across various aspects of their lives, highlighting the need for comprehensive changes and increased support. In the realm of education, there is a significant knowledge gap and obstacles during the admission process, limiting their access to educational opportunities. The implementation and enforcement of laws safeguarding their right to free education require improvement. In sports and recreational activities, misconceptions and inaccessible facilities hinder their participation and engagement. Special educational institutions vary in their ability to meet the unique needs of visually impaired students, raising concerns about the quality of education provided. Accessing reasonable accommodations in educational institutes, online resources, and libraries remains a challenge. Teacher training must prioritize understanding and support for visually impaired students, particularly in adapting instructional approaches and administering exams. Inclusive social and public infrastructure falls short in meeting their needs, impacting personal decisions, privacy, and relationships. Mobility and employment pose additional challenges with limited accessibility and workplace discrimination.

Moreover, visually impaired individuals face interference in personal matters and privacy, limited accessibility in social and public infrastructure, and challenges in mobility and employment. They experience barriers in accessing public spaces, rely on others for basic tasks, and encounter discrimination in personal relationships. In terms of mobility, inadequate transportation and inaccessible infrastructure hinder their independence. Additionally, workplace accessibility and equity are lacking, impacting their job prospects.

In conclusion, to overcome these barriers, it is essential to prioritize increased awareness and education, improved accessibility and accommodations, effective implementation of laws and regulations, and enhanced teacher training. By addressing these areas, we can create a more inclusive and equitable society that respects the rights and capabilities of visually impaired individuals.

6.3 Recommendations

To narrow the gap in the implementation of laws related to the rights of visually impaired people in Pakistan, several strategies can be pursued. Firstly, raising awareness and promoting education about the rights and legal protections for visually impaired individuals is crucial. This can be achieved through conducting workshops, seminars, and awareness campaigns targeted at visually impaired individuals, their families, educators, and the general public. By increasing knowledge and understanding, individuals will be better equipped to advocate for their rights.

Secondly, sensitization training should be provided to admission staff, educators, and administrators. This training should focus on creating an inclusive and accessible environment within educational institutions and ensuring that appropriate accommodations are provided for visually impaired students. By enhancing the understanding and sensitivity of these key stakeholders, barriers to access can be reduced.

Thirdly, it is essential to strengthen the enforcement mechanisms of existing laws. This may involve establishing dedicated oversight bodies and monitoring systems to ensure compliance with legal requirements. By promoting accountability and enforcing

consequences for non-compliance, the implementation of laws protecting the rights of visually impaired individuals can be improved.

Furthermore, collaboration and partnerships between government agencies, NGOs, disability rights organizations, and other stakeholders are vital. By working together, resources can be shared, initiatives can be developed and implemented, and advocacy efforts can be strengthened. Collaborative efforts can help drive policy changes and address the challenges faced by visually impaired individuals more effectively.

Investing in accessible infrastructure is another key aspect. Educational institutions, public spaces, transportation systems, and workplaces need to be made more accessible for visually impaired individuals. This may involve installing tactile markers, audible signals, braille signage, ramps, and other necessary accommodations. Providing accessible technology and assistive devices can also significantly enhance accessibility.

Ensuring an inclusive curriculum and teaching methods is essential. Teachers should receive training and resources on adapting teaching materials, using accessible technologies, and employing alternative assessment methods. By accommodating diverse learning needs, educational institutions can create an inclusive environment where visually impaired students can thrive.

Promoting equal employment opportunities and inclusive practices is vital. Advocacy efforts should focus on securing equal employment opportunities, reasonable accommodations, and workplace accessibility. By fostering inclusive employment practices, visually impaired individuals can participate fully and contribute to the workforce. The government should strengthen enforcement mechanisms by taking punitive actions against violators. It is essential to establish clear consequences for individuals, organizations, and institutions that fail to comply with the legal requirements pertaining to accessibility and accommodations for visually impaired individuals. By enforcing these penalties, a strong message will be sent that the rights of visually impaired individuals must be upheld, promoting greater adherence to the laws and ensuring meaningful change in their implementation.

Lastly, involving visually impaired individuals and their representative organizations in policy-making processes and decision-making forums is critical. Their insights and experiences are invaluable in shaping effective measures and ensuring that the needs of visually impaired individuals are addressed adequately.

Through the implementation of these strategies, Pakistan can make significant progress in narrowing the gap in the implementation of laws related to the rights of visually impaired people. By creating an inclusive society that provides equal opportunities and supports the full participation of visually impaired individuals in education, employment, and public life, Pakistan can foster a more inclusive and equitable future for all.

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Glossary

Accessible Educational Materials (AEM): Materials designed or converted for use across diverse student needs, irrespective of format (print, digital, graphical, audio, video). In the context of the Individuals with Disabilities Education Act (IDEA), AEM specifically refers to print educational materials transformed into specialized formats like Braille, large print, audio, or digital text.

Accommodations: Supports and services enabling learners to access the curriculum.

Assistive Technology (AT): Any item, equipment, or product system—commercially acquired, modified, or customized—aimed at increasing, maintaining, or improving the functional capabilities of children with disabilities. Excludes surgically implanted medical devices.

Blind: Medically defined as visual acuity of 20/200 or less in the better eye. Blindness doesn't necessarily mean no vision; individuals may perceive light and shapes. It can be temporary or permanent, resulting from damage to the eye, optic nerve, or brain's vision-processing area.

Braille: A tactile system for reading and writing, utilizing raised dot patterns for letters, numbers, and punctuation. Braille can be embossed (permanent) or refreshable (electronically generated and accessed via a braille display device).

Expanded Core Curriculum (ECC) B/VI: Concepts and skills (compensatory or functional academic skills, communication modes, orientation and mobility, social interaction, etc.) requiring specialized support for learners with visual impairments.

Modification: Changes in what the learner is taught from the standard curriculum.

Orientation and Mobility (O&M): The ability to know one's location, destination, and move safely and efficiently from one place to another.

Screen Reader: Software enabling blind or visually impaired learners to hear the text displayed on a computer screen through text-to-speech or a braille display.

Speech-to-Text: Software converting spoken words into typewritten text.

Teacher of Students with Visual Impairments (TVI): A certified teacher providing direct instruction or consultative educational support to blind/visually impaired students. Collaborates with the educational team to adapt activities and materials.

Text-to-Speech (TTS): An assistive technology type reading digital text aloud.

Visual Impairment: A condition of the eye or visual system resulting in reduced vision due to limited visual acuity or field, uncorrectable with standard lenses.

Tactile Tiles: Raised or textured surfaces designed for touch, offering sensory information for individuals with visual impairments.