FROM "DISABLE" TO "GIGABLE":

LEVERAGING GIG-PLATFORMS FOR INCLUSIVITY AND WELL-BEING OF PEOPLE WITH DISABILITY

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ABSTRACT

This study looks at how higher education institutions (HEIs) in Pakistan support students with disabilities (SWDs), focusing on existing policies, support systems, and the barriers these students face. The main goal is to identify gaps in institutional policies, practical limitations, and accessibility issues that affect SWDs in universities. Using an inclusivity and well-being lens, the study also explores how digital accessibility and participation in gig-based work influence the overall well-being of SWDs. A mixed-methods approach was used to get a clearer and more balanced understanding of the issue. On the qualitative side, in-depth interviews were conducted with focal persons responsible for disability support services in 15 HEIs located in Islamabad and Rawalpindi. These interviews were analysed using thematic analysis to highlight institutional practices, challenges, and policy weaknesses. On the quantitative side, data were collected through an online survey using Google Form from 176 SWDs currently studying in HEIs across Pakistan. This data was used to examine the relationship between digital accessibility, involvement in gig work, and student well-being. The findings from both qualitative and quantitative data were combined through triangulation to strengthen the reliability of the results. Overall, the study finds that many HEIs lack adequate policies and support systems for SWDs, and there are noticeable differences in digital accessibility across institutions. More importantly, the results show that better digital accessibility and active participation in gig-based work are linked to improved well-being among SWDs. Based on these findings, the study provides practical, evidence-based recommendations to improve institutional support, promote inclusive learning environments, and enhance the long-term well-being of students with disabilities in Pakistan's higher education sector.

PREFACE

This research project, titled "From "Disable" to "Gigable": Leveraging Gig Platforms for Inclusion and Well-being of People with Disabilities," explores the prevailing challenges, opportunities, and institutional capacities within higher education institutions (HEIs) in Pakistan for promoting disability inclusion and economic empowerment. Recognizing that disability inclusion remains an under-addressed area in Pakistan's higher education landscape, this study aims to fill the policy and practice gaps by investigating how students with disabilities (SWDs) are currently supported—and how digital platforms, particularly gig work, can be leveraged to enhance their academic participation and financial independence.

Funded by the RASTA 7.0 Competitive Grants Program of the Pakistan Institute of Development Economics (PIDE), this study adopts a mix-mode research methodology adopting both qualitative and quantitative approaches. Data were collected through in-depth interviews of focal persons/Officers in charge of Student Affairs or Disability Coordinators and conducting surveys of students with disabilities at major public and private universities in Islamabad and Rawalpindi regions of Pakistan. The findings reveal considerable variations in institutional support mechanisms, limited policy frameworks for inclusive education, technological and infrastructural gaps, and a general lack of awareness regarding gig economy potential for disabled students.

The research uncovers both structural and operational barriers faced by SWDs, including inadequate assistive technologies, insufficient institutional policy, and absence of dedicated programs to facilitate digital gig-work participation. Nevertheless, some universities have made incremental progress by establishing disability centers and offering limited support services.

The study concludes by proposing a set of actionable and evidence-based policy recommendations for the Higher Education Commission (HEC) of Pakistan. These include revising a national disability inclusion policy for HEIs with a significant consideration for creating pathways for gig economy engagement tailored for students with disabilities, allocating funding for digital accessibility infrastructure, and integrating assistive technologies. The goal is to establish a comprehensive and sustainable framework that ensures academic inclusion and fosters financial well-being, enabling students with disabilities to thrive in both academic and economic spheres.

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INTRODUCTION

The academic sector has prioritized representation, equity and engagement. Regardless of ongoing measures to establish accommodating pedagogical setting, learners with diverse abilities persist to face structural inequality (Nieminen, 2023). In recent years, disabled students remain systematically disadvantaged compared to their non-disabled peers. It is essential that educational practitioners and policy makers appreciate the complexity of the disabled student experience (Brewer et al., 2025). The increasing complexity of modern labor markets and social structures present significant challenges to improve integration and social skills among students with a range of abilities since traditional educational approaches frequently fall short of meeting their specific demands (Hurenko et al., 2024). However, the organized, customized strategy required to guarantee long-term professional and personal success for students with special needs is absent from existing social policy and inclusion models (Kenny et al., 2023).

According to the United Nations Sustainable Development Goals by promoting digital inclusion and economic empowerment of persons with disabilities (PwDs). It supports SDG 8 (Decent Work and Economic Growth) by enabling flexible, dignified employment through gig platforms, allowing PwDs to participate in the labor market on their own terms. By reducing barriers to digital work and advocating for accessible platform design, the project also advances SDG 10 (Reduced Inequalities), fostering equitable participation in economic and social life. By improving self-worth, mental health, and general quality of life through meaningful gig employment, the project advances SDG 3 (Good Health and Well-Being). Additionally, it supports SDG 4 (Quality Education) and possibilities for lifelong learning by detecting skills shortages and encouraging digital upskilling. In the end, the project contributes to poverty alleviation, addressing SDG 1 (No Poverty) and strengthening the idea of an inclusive, resilient, and accessible future of employment for people with disabilities by establishing routes for sustainable income.

An estimated 1.3 billion individuals worldwide, accounting for 16 percent of the population experience some form of disability that impact various aspects of daily life (WHO, 2022). Unemployment among PWDs remains alarmingly high, often exceeding two to three times that of people without disabilities. Structural, attitudinal, and technological barriers limit their access to decent work. Simultaneously, the gig economy has emerged as a defining labor paradigm of the 21st century. By 2024, more than 450 million people worldwide are engaged in gig work. Platforms like Upwork, Fiverr, Uber, and TaskRabbit have demonstrated the potential of disaggregated, skill-based, location-flexible employment.

Inclusivity, diversity and equality are the trending topics of this era, as the world is constantly challenging the existing knowledge regarding the institutional structures and stereotypes. Diversity and inclusion are as crucial for an organization as attracting and retaining talent. Moreover, diversity and inclusion are not restricted to age, gender, race, or ethnicity but comprise all minorities and underrepresented groups, e.g., people with disabilities (Adamson et al., 2021). Various countries have passed laws for the rights of disabled people and encouraged them to access social life and employment, along with strengthening their belief that they are not a burden but contributors to society (Heymann et al., 2022).

1.1. Background and Context of the Study

Pakistan's Disability Rights Act has become a law and has some policies and national plans for disabled people (Jain & Balu, 2024). Despite these laws and policies, Pakistan lacks a set national definition for disability. Moreover, it does not have a registry to determine the total number of People with Disabilities (PWDs) (Razzaq & Rathore, 2020). PWDs face several social and vocational challenges. Employment of PWDs is crucial but one of the major barriers as they are still not considered as a part of mainstream society (Rehman et al., 2022). To overcome this issue, Pakistan has also set a 3% employment quota for people with disabilities (Chauhdry, 2022).

The prospects of career development of PWDs in Pakistan remains significantly underexplored despite various national and international mandates advocating for disability rights and Equal Employment Opportunity (Jahanzaib et al., 2021). Although the government has enacted laws with the objective of incorporating persons with disabilities (PWDs) into the labour force, there is a significant disparity between the policy and practice (Haider, 2024). This disparity manifests in limited access to high-quality education, vocational training, and job prospects, which leads to the social and economic marginalization of people with disabilities and a decline in their overall quality of life (Haider, 2024).

Pakistan has a high population of PWDs and weak law implementation (Hussain et al., 2022). The population of PWDs in Pakistan is 13.4% of the total population, but the employment quota set for disabled people is only 3% (Haider, 2024). Therefore, the employment quota represents few disabled individuals. Though the public and private sectors are becoming diverse, the implementation of policies and practices of the employment cycle are not transparent. Hence, an emphasis is placed on an 'organization's diversity' rather than its 'inclusivity', which requires utmost importance. Being a minority group, disabled people face multiple challenges throughout their employment cycle, i.e., recruitment, selection, development, retention, and separation (Rehman et al., 2022). Firstly, securing a job is a challenge, then securing a good position, and lastly, career advancement due to the lack of educational and training facilities along with the stigmatization and stereotypes attached to the PWD (Goggin & Ellis, 2020). Similarly, two significant problems include insufficient quotas and stagnant growth of disabled employees, which lowers their performance and morale.

This study specifically focuses on the inclusivity and well-being of Student with Disabilities (SWDs) currently enrolled in the Higher Education Institutes (HEIs) of Pakistan. To encourage educational and economic inclusion, Pakistan's HEC Policy for Students with Disabilities emphasizes the necessity of accessible digital learning environments (Manzoor et al. 2024). SWDs can participate in platform-based labor thanks to digital accessibility, which provides flexible work schedules that mitigate conventional, structural or physical constraints. Harpur & Blanck (2020) pointed out that accessible digital platforms give gig workers with disabilities new revenue streams, fostering financial independence. However, they warn that this potential can stay unattainable in the absence of inclusive design and regulation. This inclusion is essential for developing skills that feed into gig economy participation, thereby enhancing long-term financial well-being.

This research focuses on understanding how an inclusive environment with digital accessibility and engagement in gig-work effect financial well-being for PWDs (university students) in Pakistan. As

digital platforms gain popularity, this study also aims to identify challenges and barriers in providing digital accessibility and gig-work opportunities for this population and provide evidence-based policy recommendations.

1.2. Scope, Purpose and Objectives of the Study

Fundamental right to higher education for all individuals and the importance of inclusive practices as well as its impacts in realizing this right: It is important to address the inclusivity gap that affects students with disability in higher education. Not only by adapting the infrastructure of the campuses to improve physical accessibility but also changing institutional cultures and mindsets to create a safer environment, since discriminatory practices still happen, even when inclusive policies are in place. The need for a holistic approach to inclusive higher education: There must be substantial support to enable accessibility, financial support and adequate facilities to fight structural discrimination. Soft skills, holistic approach and technological resources to individualize the attention to every student's needs are essential (Katsouda, 2024).

The purpose of the study is to determine ways to further enhance the Higher Education Commission's (HEC) present policy for students with disabilities. Some of the shortcomings in Pakistan's HEC Policy for Students with Disability, 2021 are as follows:

i. Limited Focus on Employment: The policy primarily addresses educational access and accommodations but lacks comprehensive strategies for post-graduation employment, including leveraging gig-work.
ii. Insufficient Technological Support: There is a need for more robust technological support and training to help disabled students acquire digital skills essential for gig-work.
iii. Inadequate Financial Support: Financial aid and scholarships specifically designed for students with disabilities are not adequately covered by the policy, despite the fact that these programs can be vital to their academic and career advancement.
iv. Accessibility Issues: Physical and digital accessibility remains a challenge in many HEIs, limiting the full engagement of disabled students in academic and extracurricular activities.

The primary objectives of this research are:

1. To explore and analyze the primary institutional role in dealing with challenges and barriers faced by university students with disabilities (with sensory & limited mobility issues) in Pakistan.
2. To examine the role of digital accessibility and participation in gig-work in enhancing the financial well-being of university students with disabilities (with sensory & limited mobility issues) in Pakistan.

1.3. Research problem

HEC in Pakistan is intended to create an inclusive learning environment for students with disabilities. To achieve this, they have implemented policies requiring HEIs to establish accessibility committees, provide reasonable accommodation, and raise funds for disability-related facilities. HEC also provides financial aid and scholarships for students with disabilities (GOP, 2021). The lack of

precision in the policy's assessment and implementation of accommodations is its main flaw. It may result in inconsistent and delayed support for students with disabilities since it does not explicitly define the standards for judging acceptable accommodations or the procedures involved in making them.

Although Pakistan's gig economy is expanding, little is known about how students with disabilities use and gain from gig platforms. Their engagement may be hampered by obstacles like lack of institutional support, inadequate skills, and digital inequality (Prevalence of Functional Difficulties, in HEC Policy for SWDs, 2021). Creating inclusive digital employment regulations requires an understanding of these issues.

Based on the context and background of the study, research gaps and problem statement, following research questions have been constituted to explore the plausible answers:

1. How Pakistani higher education institutes are dealing with challenges and systemic barriers faced by students with disabilities to ensure their inclusion and financial well-being through sustainable employment including gig-work?
2. How can digital accessibility and targeted employment support through gig-work engagement enhance the financial well-being of students with disabilities in Pakistani higher education institutions?

LITERATURE REVIEW

In the current fierce job market, where it is fundamental to have a certification that proves the skills one has acquired and where it is equally important to have protective measures that guarantee employment for individuals with disabilities, we still have not managed to ensure that the employability of those individuals is on par with that of the working population that has no disabilities. While this is a problem in all countries, it is particularly acute in the European Higher Education Area (EHEA) (Solís-García et al., 2025). In the Spanish context, integrated measures include a job reservation quota of 2% in the private sector and 5% in the public sector (de la Discapacidad, 2023). Yet these figures translate into a low insertion rate that may stem from a profile-position mismatch in some cases due to the low graduation rate among these individuals and prejudice by private sector recruiters in other cases.

2.1. Inclusivity and Well-being of SWDs through Digital Accessibility

The number of students with disabilities in higher education is increasing, but research shows that they continue to face significant challenges for equitable participation (Bartolo et al., 2025). Students with disabilities (SWDs) enrolled in higher education (HE) across the world are increasing day by day (Bartolo et al., 2025). In Malta, following the implementation of inclusive education in compulsory schooling, the number of students registered as having a disability at the University of Malta has been increasing, rising from 98 (0.83% of all students in 2016) to 383 (3.1% of all students in 2023). Worldwide, the percentage of people with disability reaching to under-graduate and graduate studies level is only 10%, talking about Latin America this value fluctuates from 2 to 5 percent (Carrillo-Sierra et al., 2025; Duryea et al., 2019). The countries lie under European Union, PWDs have higher education up to 24%, on the contrary of non-impaired people to 36 percent (Carrillo-Sierra et al., 2025). This allocation in India is 0.63% of the total higher education student population. Inadequate presence is estimated from 1 to 3 percent of the total student body in Israel of people with disabilities, vis-a-vis of PWDs across the population as a whole (Almog, 2018; Lombardi et al., 2018).

Students with disabilities (SWDs) face different circumstances that effect their lives called Barriers to learning and participation (BAP). They interact factors such as culture & norms, policies, enterprises, social & financial environment (Alzate, 2023). These students face physical and interpersonal constraints that prevent involvement in university life (Morina & Biagiotti, 2022; Moriña & Carballo, 2017). Infrastructure limitation, including inadequate ramps, impede movements and restricts participation in academic spaces (Nieminen et al., 2025; Nieminen et al., 2024). Barriers in teaching and learning practices, including the absence of adapted materials and support technologies, obstruct effective student participation (Echeita & Ainscow, 2011). Negative and societal attitudes remain a major barrier, for instance, harmful stereotypes and stigma lead to an unfriendly atmosphere for these students. Moreover, communication obstacles hinder meaningful dialogues among student and educators, restrict adaptation to varied learning needs (Li et al., 2024; Pérez-Esteban et al., 2023).

SWDs can participate in platform-based labor thanks to digital accessibility, which provides flexible work schedules that get around conventional structural or physical constraints. (Altenried, 2020) highlight how digital platforms have reorganized labor, allowing PWDs and other contingent workers

to engage in work that was previously unattainable due to social and physical limitations. In a similar vein, (Harpur & Blanck 2020) point out that accessible digital platforms give gig workers with disabilities new revenue streams, fostering financial independence. However, they warn that this potential can stay unattainable in the absence of inclusive design and regulation. To encourage educational and economic inclusion, Pakistan's HEC Policy for Students with Disabilities emphasizes the necessity of accessible digital learning environments (Manzoor et al. 2024). This inclusion is essential for developing skills that feed into gig economy participation, thereby enhancing long-term financial well-being.

2.2. Inclusivity and Well-being of SWDs through Gig-work Engagement

Stable employment is essential for the health, psychosocial, and financial well-being of people with physical disabilities (PwPD). Unfortunately, the low employment rate for PWDs, exposes them to adverse effects of unemployment, including depression, anxiety, low self-esteem, and physical pain. Helping PwPD find gainful employment will improve their general health and well-being (Iwanaga et al., 2024). As a result, universities need to consider more than just the academic and learning aspects; they also need to make sure that students develop as holistically as possible. Physical and mental health aspects that were created by God must be included in this development. Universities are, after all, the essential pillars that support the growth of knowledge and the improvement of society (Solís-García et al., 2024). They have a vital role to play in all initiatives for inclusion and well-being, especially those that target those with disabilities, because these fundamental pursuits require the most profound changes across the educational landscape to ensure that all students have inclusive opportunities (Paz-Maldonado, 2020).

A specialized gig up skilling program co-run by Enable India and Microsoft trained 200 PWDs in data annotation, transcription, and digital QA. Over 75% secured recurring gig roles within three months. TaskMoby integrated a feature for “disability status” (voluntary) to match PWD workers with clients open to inclusive hiring. Their inclusive hiring initiative led to a 30% increase in income for enrolled workers. Fiverr launched an accessibility revamp in 2022. It partnered with W3C experts and disability consultants, resulting in increased user satisfaction scores among visually impaired users by 42% (Nagina, 2025).

Gig employment has a lot to offer in terms of well-being, including the freedom to choose how hard and under what circumstances you work (Nelson et al. 2020). Policies and support systems must acknowledge these challenges in order to ensure that everyone has equitable access to the advantages of gigging. In addition, gig-work may provide economic stability and independence for the economically marginalized population of PWDs who earn lower incomes (Efthymiou, 2025) and face higher levels of unemployment compared to their non-disabled counterparts. Harness the power of gig-work to reduce income inequality and build assets for individuals with disabilities by providing a place where they can utilize their skills and talents at their own pace.

As with non-disabled workers, gig labor provides the kind of flexibility and autonomy that can eliminate many other job hurdles that handicapped people encounter, giving gigged people greater control over their working lives and increased financial stability. Gig platforms have the ability to overcome these constraints and empower PWDs through improved well-being and financial

independence by providing flexible schedules and remote job alternatives (Schulte et al. 2022). However, the gig economy offers a chance to improve inclusivity and the wellbeing of people with disabilities.

2.3. Challenges and Barriers for SWDs in Higher Educations Institutes

In the recent years, globally it is recognized to make education more accessible and inclusive. Many countries over the world-including Saudi Arabia have taken initiatives to help students with disabled (SWD) in higher education. Disability Units (DU) and student counseling units (SCU) are established and designed to meet the requirement of these students. On the contrary, though such measures have been taken, SWD still face challenges (Mbuvha, 2019). However, the efficacy of these support systems in shaping the experiences of SWDs is a significant problem, as the support systems in place are not effective enough to positively impact these students' experiences (Mbuvha, 2019). In spite of institutional support structures, challenges persist in ensuring equal access and opportunities for SWDs in higher education institutions (HEIs) in South Africa (Munjanja & Hendricks, 2024). Limited funds, inadequate infrastructure and a lack of understanding about disability concerns are still important impediments that must be addressed (Mutanga, 2017).

The researcher (Sims, 2022) identified that Disability Units (DU) often don't play as a stand-alone entity. Instead, they are merged with student affairs or counselling departments. This structure limit its ability to practically assist students with disability, they lack independence which is required as specialized services. It should be noted that not all students with disability choose to approach for counselling services. (Hartrey et al., 2017) pointed out many reasons for this, including personal beliefs, privacy, and the stigma linked with psychological services and mental health.

In South Africa, the performance of student support frameworks at certain higher education institutions (HEI's) raises concern for students with disabilities along with policymakers, administrators and educators. Students with disabilities are facing significant barriers in their academic journey after the establishment of these support systems (Munjanja & Hendricks, 2024). (Mutanga, 2017) analyzed that there are several factors to these ongoing challenges, like lapses in curriculum design, discriminatory views toward disability, inadequate transport services, non-inclusive infrastructure and shortage of support aid and tutors. Moreover, the students without disabilities are facilitated with more resources and attention than disabled learners. Such type of negligence makes it hard for SWD's to cope up with their academic pursuit. These hardships and obstacles lead to high dropout rates and restrict several SWDs from completing higher education (Mutanga, 2017).

We must put in place structural interventions aimed at students with impairments in order to fight the systemic discrimination that people with disabilities experience (Hussain et al., 2022). Due to the growing number of university students with disabilities (Zhang et al. 2018), the rights of these students in post-secondary education are starting to receive international attention (Taneja-Johansson, 2024).

RESEARCH DESIGN AND METHODOLOGY

The present research aims to explore policies and support efforts that may enhance the inclusiveness through ensuring digital accessibility and availability of gig employment for students with disabilities (especially with sensory and limited mobility issues) enrolled in institutions of higher education of Pakistan.

This study adopted mixed-method which allowed the researchers to use both qualitative and quantitative methods in the same study (Goddard & Melville, 2004). The baseline concept of using quantitative and qualitative research methods was to study the phenomenon via one-to-one interviews with the HEI officials and via surveys to dig into the perceived support and limitations of the disables studying in these HEIs. The aim was to test causality, compare variables and define the phenomenon. With the correct use of validity standards defined by the experts, the quantitative methods and qualitative methods led to deeper insights (Goddardf & Melville, 2004). In social sciences, triangulation i.e., use of a combination of data collections methods used to get hold of diverse viewpoints or standpoints and is often thought to help validate the claims that might arise from a single source of data (Flick, 2018).

3.1. Population & Sampling

This study adopted a purposive sampling strategy to ensure objectivity and purpose of the study for data collection from HEIs in Pakistan.

For qualitative study (stage-1), the population consisted of disability coordinators/in-charge student affairs from 37 HEC-chartered universities (public and private) operating in Rawalpindi and Islamabad regions of Pakistan. For quantitative study (stage-2), the population comprised of students with disabilities currently enrolled in HEIs of Pakistan.

For stage one interviews, minimum 10-15 universities participated in interviews for the qualitative study and for stage two, SWDs from 22 universities participated in the quantitative survey.

For Qualitative study (Stage-1): The data was collected from 15 universities (Appendix D) through semi-structured interviews (refer to Appendix-A) of the relevant officials designated for disability support services for the students. The interviews were conducted on-site or online as per agreement of the relevant officials in the participating institutes. The interviews were recorded with the consent of the interviewees and confidentiality of the contents was ensured.

For Quantitative study (Stage-2): The sample of targeted respondents was drawn from the intended population of students with disabilities enrolled in Higher Education Institutes (HEIs) located in the cities of Islamabad and Rawalpindi. The sample size was be determined using the "Green's rule of thumb (1991)", usually used for regression analysis. This method estimates the sample size based on the following formula: $N >= 50 + 8(m)$, where m=number of predictors (independent variables). Since this study is using two predictors, thus $N>=50 + 8(2) = 66$ (minimum sample size required). However, for a better and robust analysis we aim to collect data from approx. 100-150 respondents.

Keeping in view the context of the study, purposive sample technique was adopted to approach targeted respondent and to achieve objectives of the study. This approach was validated through the measurement of reliability and validity of the data. Furthermore, both Islamabad and Rawalpindi are the metropolitan cities of Pakistan and therefore sample for this study truly represents the characteristics of overall population.

3.2. Research Instruments

For Stage-2, a self-administered questionnaire (refer to Appendix-B) was used. The questionnaire was prepared in English language containing three main sections, i.e., introduction, demographics, and study variables.

The introduction section contained the information about researcher, purpose of the study, and the type of data required from the respondent. The respondents were requested for their consent to participate in the survey and were also assured for the anonymity data and their identity. The second section consisted of the demographic information of the respondents, which included information about gender, age, qualification, and type of disability. The last section contained the questions related to the proposed variables of the study, i.e., digital accessibility, gig-work engagement, and financial well-being. All the items were measured on a 5-point Likert scale for further analysis.

Digital Accessibility: We employed the five-item Web Content Accessibility Guidelines (WCAG) scale for digital accessibility (W3C, 2018). A 5-point Likert scale, with 1 denoting strongly disagreed and 5 denoting strongly agreed, was used to measure the scale. "Course videos and webinars include captions or transcripts that meet my needs" is an example item.

Gig Work Engagement: The 5-item Gig Work involvement Scale (GWES), which was modified from the Pew Research Center's gig work survey methodology and EPI estimates on gig-economy participation, was used to gauge gig labor involvement (Smith, 2016). A 5-point Likert scale, with 1 denoting strongly disagreed and 5 denoting strongly agreed, was used to measure the scale. "I find gig-work platforms easy to use for finding and completing tasks" is an example item.

Financial Well-being: The Consumer Financial Protection Bureau's four-item Financial Well-being Scale (FWS) was used to measure financial well-being (CFPB, 2017). These scales have been widely used and validated in various contexts. The scale was measured on a 5-point Likert Scale ranging from 1 = Strongly Disagreed to 5 = Strongly Agreed. Sample item is “I have the capacity to absorb a major unexpected expense.”

3.3. Data Collection Procedures

Stage-1: Interviews (Qualitative Data Collection): The project team members and research assistants (RAs) were hired to collect data from target respondents through interviews. To begin with stage-1, the researcher created a Google sheet containing names of all the 37 universities, their location, name of the focal person, name of the in-charge student affairs/disability coordinators, their contact numbers, official email addresses, and number of disabled students enrolled in their HEI. Following the list, the focal persons were contacted through their contact numbers and briefed about the study. A soft booking initially through phone calls were made for a slot of interview.

Afterwards, a formal email was sent to the relevant officials, explaining the motive of the research, guidelines and time required for the interview. After all the formalities, a visit was made by the research team/research assistants in case of on-site interviews, and a meeting using Zoom/Meet/Team platforms in case of online-interview. All the interviews were recorded using multiple devices (camera, audio recording devices, and phones) to ensure data storage. The interviewees were also requested to facilitate the stage-2 data collection (through survey questionnaire) from target respondents (SWDs).

Stage-2: Self-Administered Survey (Quantitative Data Collection): The data collection for this study was also carried out by the Project Team and Research Assistants (RAs) to ensure fast track data collection. The team of RAs were thoroughly briefed, trained and equipped with all the required resources to collect quality data from the target respondents (SWDs). Questionnaires to be designed using clear, simple language and with necessary support available to respondents with different types of disabilities. The RAs visited the HEIs in person and contact the relevant officials for their support and facilitation in contacting disabled students for the data collection. In case of visually impaired respondent, the RAs explained the motive and provided support in filling-up the questionnaire. In case of hearing disability, the respondents were briefed using specialists available in the university to explain the motive in sign-language or with available technological support (where possible). In other disabilities (limited functionality) the respondents were offered every possible help and support in filling out the questionnaire.

DATA ANALYSIS AND RESULTS

4.1. Phase I – Qualitative Analysis

In the first phase, interviews were conducted with the targeted respondents (disability support coordinators / student affairs in-charges) in participating institutes. A total of 8 questions (refer to Appendix-A) were asked to the respondents. The first question was "Does your Institute have a "Disability Support Centre?". This was to identify whether the participating institute has the dedicated disability support center established to provide necessary or essential services to the students with disabilities (SWDs) enrolled in that institute. Almost all institutes are currently providing some form of support to the SWDs, however very few institutes have the dedicated or exclusive setup for disability support. Most institutes are provided such services and support through their student affairs units.

The remaining 7 out of 8 interview questions were descriptive in nature and respondents were asked to answer with relevant explanations. The responses for all these questions were assessed through thematic analysis for further explanations and conclusions, which are explain in the following sections:

4.1.1. Thematic Analysis

Question 2: What are the major institutional policies and practices currently in place at your institution to support students with disabilities?

Interview data addressing *Question 2* revealed several institutional policies and practices aimed at supporting students with disabilities. Thematic analysis revealed some major support mechanisms that were associated with assistive technology and equipment, institutional infrastructure, and training and awareness programs. The frequency of these themes in the interviews is shown in figure 1, and it represents their relative importance in the narrations of participants.

As Figure 1 shows, the theme of assistive technology and equipment became the most common theme mentioned (14 references). Respondents highlighted the importance of assistive technologies in helping to learn, research and their general well-being. Activities recorded in institutions include the provision of special software, adaptive equipment and innovative projects, which are intended to assist students with impairments in their senses and communication. A holistic disability support is also reflected in the incorporation of well-being centers that provide psychological support. The salience of this theme implies that technological innovation is considered to be one of the key institutional policies to enhance inclusion, and at the same time, it is essential to invest in more adaptive and personalized solutions in the long term.

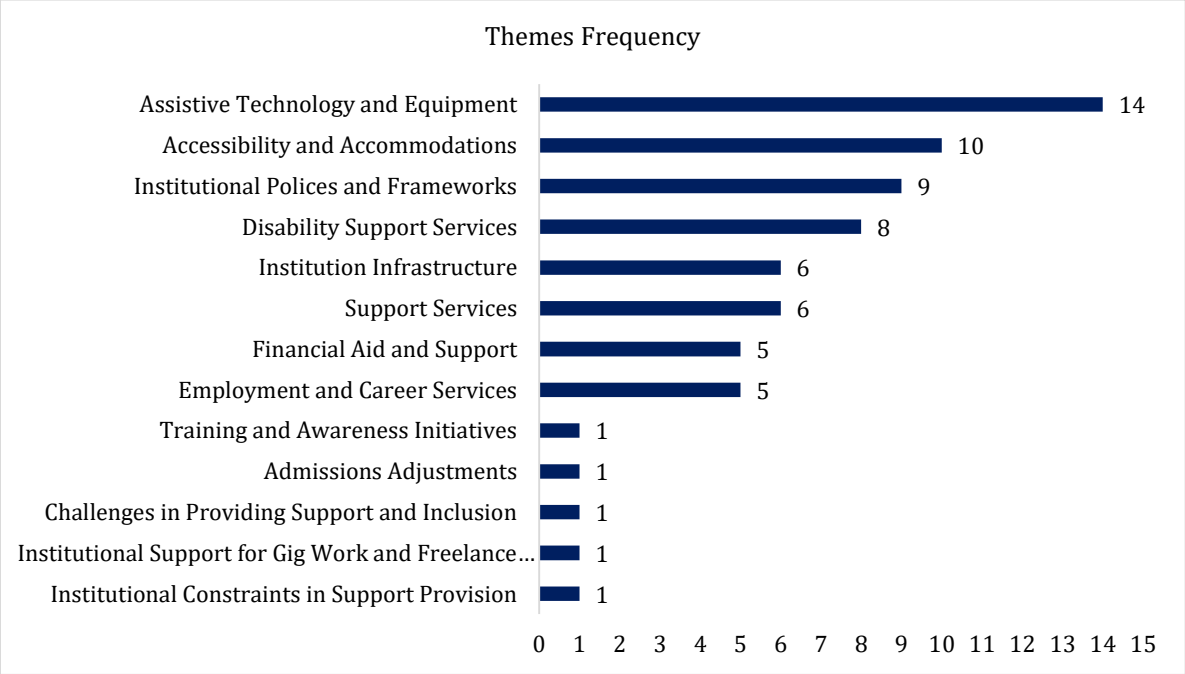
Six interviews mentioned institutional infrastructure, which is an action taken to enhance accessibility at campuses on a physical basis. Respondents explained how building accessibility could be assessed by an institution, and ramps, accessible facilities and parking spaces were installed. In other institutions where there were no special centers that cater to the disability, it was reported that coordination committees and student affairs departments played major roles in solving the issue of accessibility. The practices reflect a dual tendency of increasing institutional investment in

eliminating physical barriers and also suggests the necessity of ongoing infrastructure reviewing in order to align with changing accessibility standards.

Less commonly discussed, training, and awareness initiatives were also found to be an effective supportive practice. Among the key elements that were emphasized by the participants are awareness campaigns, seminars, and workshops that would enable the sensitization of students and faculty with disability issues. These programs were seen to play a powerful role in the reduction of stigma, the growth of empathy, and the creation of inclusive attitudes on campus. Although of lower frequency, the existence of such initiatives indicates the beginning of an awareness of the importance of institutional culture in supporting learners with disabilities.

In general, as the frequency patterns depicted in Figure 1 indicate, the institutional support is now the most focused on technological solutions, then infrastructural adaptations, and the training and awareness are comparatively under-emphasized. Collectively, these results show that though many supportive policies and practices have been adopted in the institutions, there are more opportunities to enhance cultural and capacity-building initiatives to complement technological and infrastructural actions.

Figure 1: Frequency of Themes related to Institutional Policies and Practices Supporting SWDs



Source: Information given in this graph is based on interviews data collected by author for this study.

Question 3: What are the major challenges and barriers that students with disabilities face while navigating academic life in your institution?

Interpretation of the data collected during the interviews regarding Question 3 showed that there is a set of several issues which are interrelated and students with disabilities deal with in conditions of their academic life. Ten main themes were identified using the thematic analysis as they reflect

structural, technological, financial, institutional, and psychosocial barriers. Figure 2 shows how often each of the themes was mentioned in the interviews, which shows the degree of their popularity among interviewees.

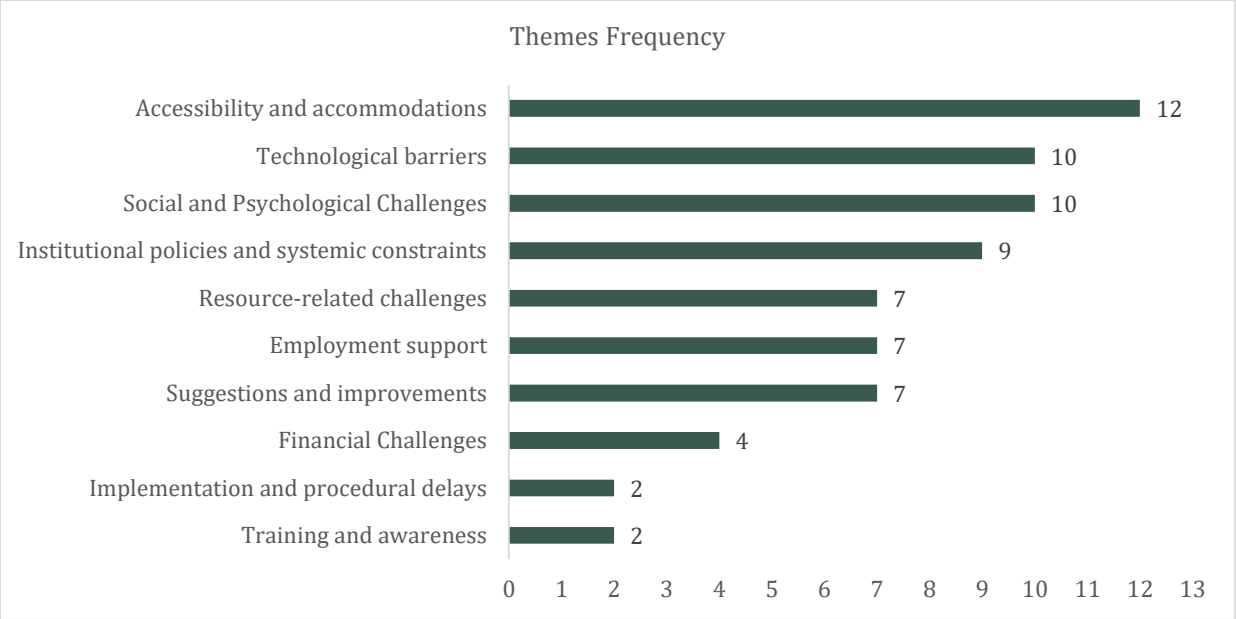
As revealed in Figure 2, accessibility and accommodations seemed to be the most often mentioned challenge (12 references) indicating the ongoing physical and digital barriers across campuses. The participants stressed the lack of access to available classrooms, libraries, and online platforms, which directly limited academic attendance.

Social and psychological issues were also very prominent (10 references each) and technological barriers. Although some assistive tools are available, according to the respondents, they have a lack of the required technologies, including screen readers and Braille devices, and the staff is not strong enough to facilitate their utilization. At the same time, stigma, isolation, and peer support adversely influenced the mental health of the students and their engagement with their studies. In nine interviews, institutional policies and structural restraints were found, which represented the lack of formal policies on disability, accommodation inconsistencies and insufficient training of the faculty.

The systemic vulnerabilities tend to add to other impediments constraining the success of support mechanisms that exist. In-between topics were resource-related issues, employment services, and recommendations and solutions (all mentioned seven times each). The participants reported the lack of disability centers, slow development of infrastructure and lack of career preparation opportunities. Simultaneously, the respondents admitted the increasing institutional awareness and offered the improvements connected with the technological upgrades and the development of infrastructure and a policy redesign.

Less powerful, but important were financial issues (four references), especially in cases of students with lower socioeconomic status who had to struggle with transportation costs and the cost of education. Lastly, implementation and procedural delays, and training and awareness became the cross-cutting issues (two references each) meaning that bureaucratic inefficiencies and inadequate staff training result in an inability to provide effective and timely support. In general, the results demonstrate the fact that students with disabilities experience overlapping and complementary barriers. Although frequency patterns (Figure 2) reveal the Relative Salience of these themes, their qualitative richness suggests that combined institutional responses to infrastructure, technology, policy, training and psychosocial support are required.

Figure 2: Frequency of Themes Related to Challenges Faced by SWDs



Source: Information given in this graph is based on interviews data collected by author for this study.

Question 4: What technologies, equipment, or assistive tools does your institution utilize to accommodate and support students with disabilities?

In the analysis of interview data on Question 4, it was identified that the range of technologies, equipment, and institutional mechanisms that were meant to accommodate and support students with disabilities was wide. Ten major themes were identified with thematic analysis and they were academic, technological, infrastructural, institutional and psychosocial dimensions of support. Figure 3 shows the frequency of the appearance of each theme in the interviews, which allows determining its relative importance in the stories of the interviewees.

Technological assistance was the most mentioned theme as identified in Figure 3 (14 references), with the importance of technology in access and participation of students with disabilities being regarded as essential. The participants identified the use of tools like screen readers, Braille printers, magnifying software, and applications that were accessible as a way of helping the impaired students. Nevertheless, the limited supply of those technologies and the necessity to upgrade them on a regular basis were also mentioned by respondents as the reasons that contributed to the challenges in this area.

The second most represented theme was institutional support and policies (8 references) indicating that there is a strong institutional commitment to inclusion in institutional policies and frameworks. Participants were talking about admission relaxations, adherence to national accessibility standards and the creation of disability support centers, and they said that policies are there but they need to be implemented consistently and periodically in order to sustain the inclusive nature of it.

In the next place was accessibility improvements (7 references), which is concerned with physical infrastructure improvement. Respondents have talked about such initiatives as ramps, lifts, and building alterations along with a campus-wide evaluation of the level of accessibility. All of this can

be viewed as positive signs of moving toward a more inclusive environment but at the same time highlights the necessity to continue the infrastructural growth in the long run.

Support services and structures were also brought to the fore (6 references) and the role of counselling, accessibility committees and peer-buddy systems in helping students in their academic and personal well-being has been pointed out. Participants acknowledged the importance of these structures in promoting the concept of inclusion although they emphasized on continuous review to make these services sensitive to the needs of the students.

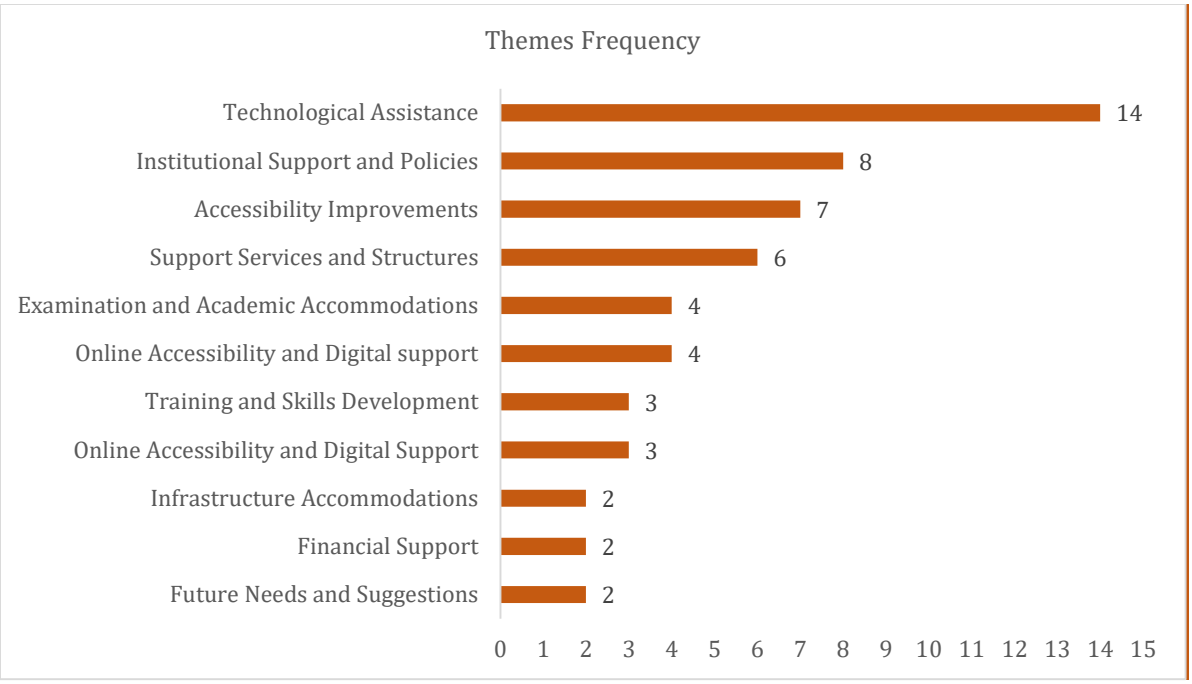
Online accessibility and digital support and examination and academic accommodations were mentioned four times each. The respondents indicated that long study times, assistance of readers/writers, and special digital accessibility (accessible websites and digital educational resources) are driving factors in equity promotion. These results show that there is a strong but dynamic method of making assessment and digital inclusivity fair.

Skills development and training appeared in three interviews and it is indicative of institution-level awareness creation and competence development of the faculty and staff. Although positive measures such as seminars and awareness campaigns were mentioned, the respondents saw the necessity of expert instructions and specific training to increase the capacity of the educators and the support staff to meet the needs of disability.

Themes were lower-frequency, such as infrastructure accommodation, financial support, and future needs and suggestions (both of which were mentioned twice). Other comments based on the infrastructure were on the availability of lifts, medical rooms, and parking areas, whereas the support in terms of money was based on scholarship awards and waiver of fees aimed at minimizing the economic burden.

Future-oriented responses included the need to enlarge digital access and invest in the emerging assistive technologies since the needs of students are constantly changing. Altogether, the results demonstrate that the institution has gone a long way to provide the technological, infrastructural, and policy-based assistance to students with disabilities. Though the centrality of technological assistance and institutional structures is evident in the frequency data (Figure 3), the qualitative information can show that there is a wider requirement to employ more integrated methods of change, such as the combination of technology, training, infrastructure, and financial support, which will create a more inclusive and equal learning environment in the classroom.

Figure 3: Frequency of Themes related to Technologies, Equipment, and Institutional Supports for SWDs



Source: Information given in this graph is based on interviews data collected by author for this study.

Question 5: Are there any institutional policies or initiatives that specifically support students with disabilities in engaging with gig work or freelance opportunities?

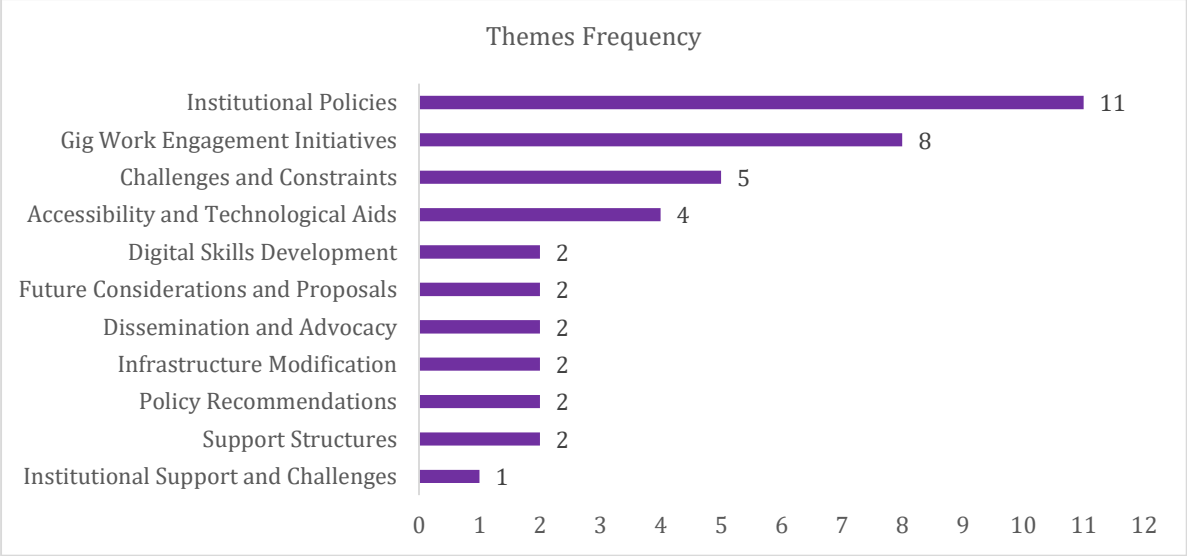
The interview data analysis in response to Question 5 showed that there are various institutional initiatives and current obstacles in ensuring that students with disabilities can become participants in the work of gig and freelance services. Thematic analysis was used to determine eleven significant themes within the transcripts as shown in Figure 4. These themes demonstrate an amalgamation of structural, technological, pedagogical, and policy-level aspects of how inclusivity and accessibility of opportunities of gig work can affect disabled students.

As illustrated in Figure 4, the institutional policy got the highest mention (11 references) as the core component of creating access and support in the study. The participants highlighted a lack of formalized policies in some universities, as some were already introducing specific strategies and support centers, but still, some were not doing this, which led to an uneven promotion of opportunities. The results of the findings point to the necessity to implement profound institutional policies that would explicitly assist students with disabilities in gaining access to and succeeding in the gig economy, including curriculum modification, digital infrastructure, and inclusive pedagogy.

The second theme that stood out as the most dominant one was gig work engagement initiatives (8 references). Some of these institutions outlined tangible measures including the creation of specific freelancing workspaces, organization of skills development, and encouragement of collaboration with online services. Examples: A student ambassador had to work with Microsoft and university-affiliated freelancing centers, which showed the transformative nature of institutional dedication to inclusive gig participation.

The topics of problems and limitations (5 references) and accessibility and technological support (4 references) indicated the existence of systematic barriers that still limit full involvement. The respondents talked about internet connectivity, poor assistive technologies, and physical inaccessibility of computer laboratories. Such efforts as accessibility improvements in websites or the availability of laptops on simple loans were mentioned as making a step in a right direction, but there are still gaps in the fair accessibility to digital resources and infrastructure. A number of intermediate themes, such as the growth of digital skills, consideration and proposal, dissemination and advocacy, infrastructure adjustment, policy suggestion, support formations (each mentioned twice), are concerned with proactive but disjointed attempts to improve inclusiveness. Among the institutions, it was reported that they used seminars, incorporated freelancing training to the curricula, and created accessible working areas. All of these efforts, however, are oriented at increasing institutional awareness, but their small scale reveals that the efforts should be organized carefully with the policy support. Lastly, institutional support and challenges (1 reference) reflected on internal capacity gaps, e.g. a lack of training of faculty and IT staff on inclusive technologies. The reinforcement of these internal systems is also crucial in making institutional commitments to come to reality in the form of real-life, and long-term care of students with disabilities seeking gig work. On the whole, the results indicate an emerging but disproportional institutional environment. Although some universities are recording impressive gains in terms of accessibility, digital literacy, and inclusive gig engagement, the absence of integrated policy-based approaches and long-term investments in resources is still causing challenges with scalability. The implications of the research include the fact that the concept of gig work readiness must be included in the more inclusive approach to disability, where students with disabilities can be empowered to engage in the changing digital economy equally.

Figure 4: Frequency of Themes Related to Institutional Support for SWDs in Gig Work and Freelance Opportunities



Source: Information given in this graph is based on interviews data collected by author for this study.

Question 6: What institutional constraints or restrictions, if any, do you face in providing support for students with disabilities to pursue gig-work or online income-generating opportunities?

Interpretation of interview record data that answers Question 6 has shown that there is a multifaceted relationship of institutional, technological, and attitudinal obstacles that limit the ability of universities to assist students with disabilities in accessing gig work, or online income-generating opportunities. The use of thematic analysis allowed discovering eleven key themes that reflected systemic, structural, and resource-related constraints. Figure 5 shows the frequency of occurrence of each of the themes in the interviews itself, which shows the relative importance of each one in the data. Institutional policies and support structures were the commonest constraint cited (11 references) as illustrated in Figure 5. The participants noted the lack or insufficient creation of specific policies aimed at helping integrate students with disabilities into the gig work programs. Respondents underlined that in the absence of a clear institutional framework, the work is disjointed and lacks structure. The results lead to the development of the set of comprehensive and enforceable policies that clearly refers to accessibility, digital inclusion, and employment preparedness among students with disabilities.

The institutional capacity and infrastructure (8 references) was the second most mentioned theme that highlighted resource constraints and poor physical and technological facilities. Some of the respondents cited a lack of funds to set up specific labs, unavailable structures and poor assistive technology. Such infrastructural barriers tend to hinder institution expansion of efforts or provision of ready space to disabled students. Solutions to these problems would be through long-term investment and policy coordination that would make the structures and operation of government inclusive. Themes like institutional support mechanisms and improvements and technological constraints (five times each) also demonstrated that there were still issues with digital accessibility, lack of funding, and imbalanced technological preparedness. Although there are those universities that have implemented programs such as lending laptops or even special training in digital skills, there are gaps in sustaining or extending such programs. Limited software, problems with connection, and the lack of government funding were noted by the respondents as the most significant obstacles to the sustainable development.

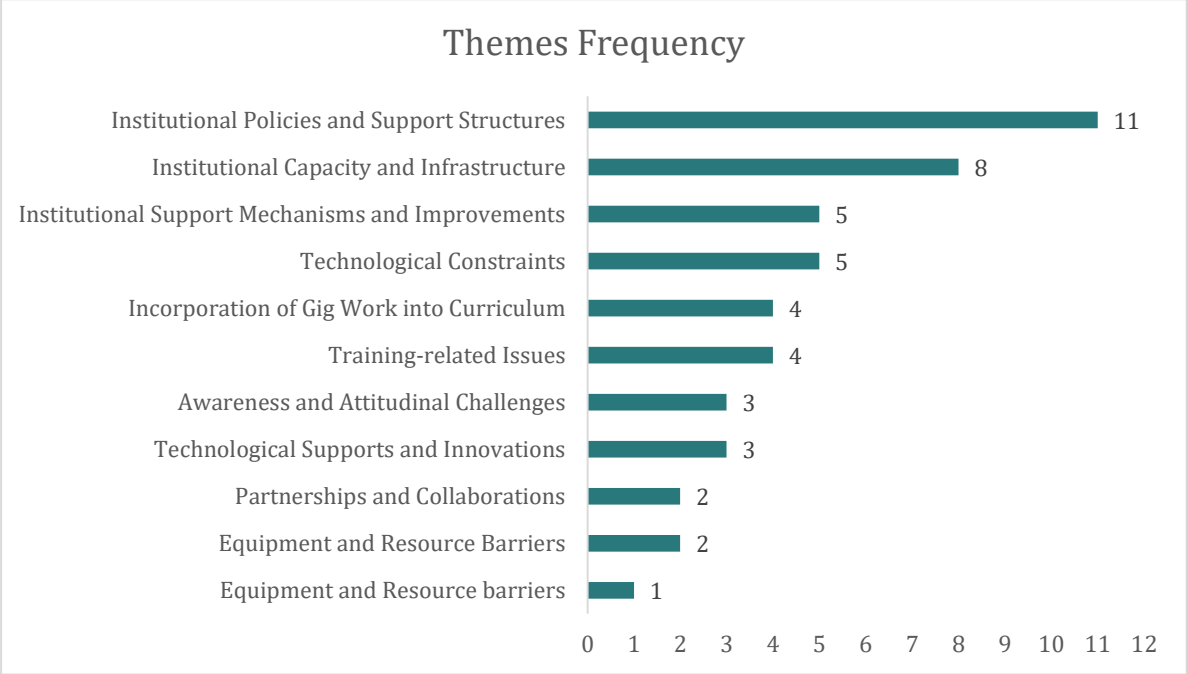
Themes in the middle tier such as the integration of gig work into the curriculum and training-related issues (four references each) contributed to the emphasis on incorporating the competencies related to the gig economy into academic programs. Although the institutions have started modifying their curricula to incorporate freelance and entrepreneurship courses, the absence of faculty training and institutional sensitivity restricts the success of these programs. Respondents emphasized the importance of specific training sessions that should be designed according to the requirements of students with disabilities so that they had equal access to the emerging digital work environment.

Softer and yet equally important constraints were manifested in themes like awareness and attitudinal challenges and technological support and innovations (three references each). The barriers to effective institutional support are stigma, lack of awareness of the disability inclusion, and unwillingness on part of students to disclose disabilities. At the same time, these students are also

excluded in the online work settings due to the lack of innovative assistive technologies, including digital translation tools or accessible platforms.

Partnerships and collaborations and equipment and resource barriers (two each) were discussed less often but had considerable importance. Institutions realized that there should be formal connections with inclusive gig platforms and the provision of simple technological resource access such as laptops, Wi-Fi, and assistive devices. These partnerships do not only increase accessibility but also provide real-life exposure and work readiness to students with disabilities. In general, the results imply that the institutions are confronted with structural, technological, and cultural barriers that are interrelated and restrict their capacity to provide complete assistance to students with disabilities in performing gig work. The frequency information (Figure 5) makes it clear that the institutional and infrastructural problems are the most frequent, whereas the qualitative contributions show that the holistic reforms are necessary. To resolve such issues, policy action, capacity building, and collaboration are required that would incorporate accessibility, innovation, and inclusion across all levels in the institution.

Figure 5: Frequency of Themes related to Institutional Constraints and Restrictions in Supporting SWDs in Gig Work



Source: Information given in this graph is based on interviews data collected by author for this study.

Question 7: From your perspective, what policy changes or improvements would you suggest enhancing digital accessibility for students with disabilities at the institutional or national level?

Interpretation of interview data which responded to Question 7 showed that there was a general agreement among participants that there was an urgent necessity to change the system in order to enhance digital accessibility among students with disabilities. The identified theme in the thematic

analysis showed that there were ten themes that interacted with one another and have been described as institutional, technological, financial and attitudinal factors that affect the development and implementation of inclusive policies. Figure 6 shows the prevalence of these themes in the transcripts, which demonstrates their relatively high rate in the data.

The most commonly mentioned policy priorities as illustrated in Figure 6 include Technology and Assistive Tools and Accessibility Adjustments and Resources with 11 references each. Respondents highlighted how assistive technologies and available infrastructure help to provide an equitable experience to students with disabilities. Nevertheless, not all institutions have the tools, training, and the infrastructure that will make it accessible. Participants pointed out the need to have policy structures to ensure the inclusion and use of assistive technologies as a norm, with staff training and resource allocation to enable this.

The following most salient topics, Institutional Policies and Support Structures and Policy Recommendations and Implementation (10 references each) demonstrate the significance of formalized governance mechanisms and well-defined strategies of implementation. Respondents noted that at national levels, there is a general policy guideline but institutional implementation is still not coherent. They emphasized the importance of special disability support centers, inclusion policies that are enforceable, and that periodically, a monitoring structure would be necessary to close the gap between policy development and actual implementation.

Prominent too were Gig Work Opportunities (9 references), which is a sign of growing appreciation of the role of flexible, online-based employment in empowering students with disabilities. Respondents observed that career services and institutional curricula rarely address opportunities to be a gig or freelance worker to meet the needs of disabled students. The changes in policy were thus suggested to incorporate gig economy training courses, provide industry connections and provide open access in the higher education institutions to enable income generation activities.

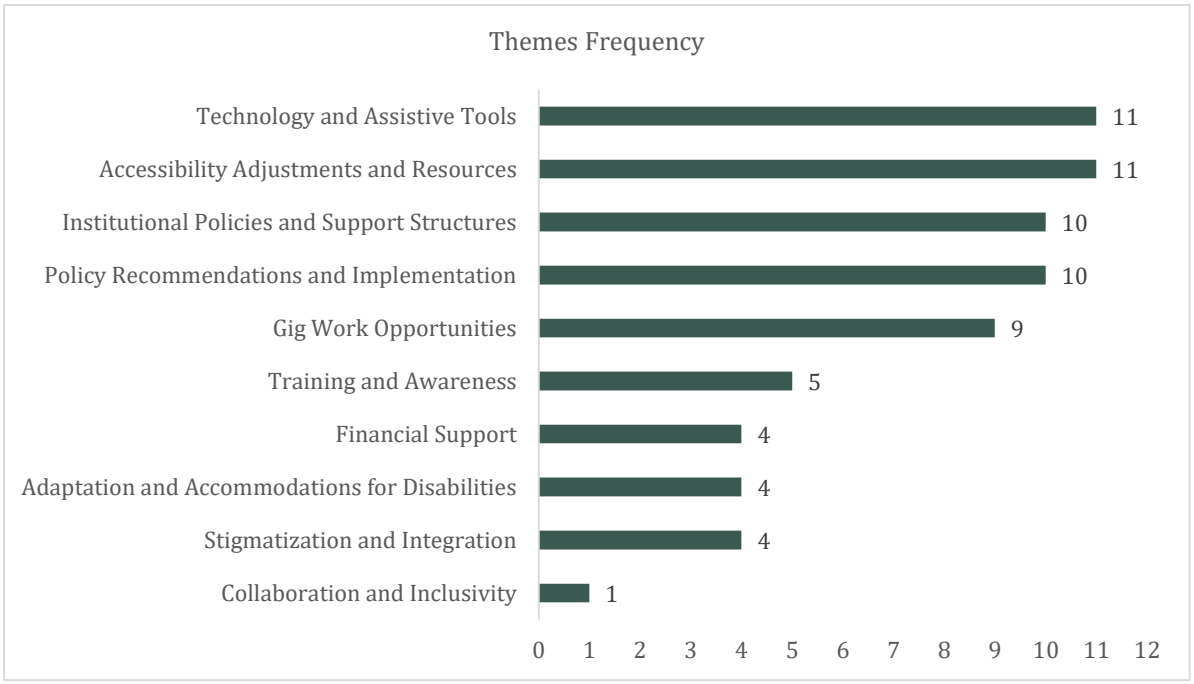
Intermediate themes like Training and Awareness (5 references) and Financial Support (4 references) indicated a high potential and funding shortage to support effectiveness of the policy. Lack of formal training of faculty and IT staff was a fundamental obstacle to the attainment of digital accessibility, as identified by participants across all instances. Likewise, funding issues such as inadequate budget cuts on accessibility programs, specialized laboratories and assistive technology were mentioned as recurrent problems.

To develop the institutional competence and sustainability, the policies of the mandatory staff development and specific financial assistance programs were suggested. The other themes, which were Adaptation and Accommodations to Disabilities, Stigmatization and Integration, and Collaboration and Inclusivity (4, 4, and 1 reference, respectively), brought about more macro-cultural, operation features of accessibility. Respondents also stressed the relevance of such adaptive modifications as changes in assessment, special seating and inclusive educational resources. In addition, chronic social stigma and absence of inter-institutional cooperation were also cited as obstacles that restrict participation and integration. Interventions of policy encouraging sensitization training, inclusive campus environment, and national frameworks of collaboration were considered crucial to the promotion of holistic accessibility. In general, the results demonstrate

that the process of expanding digital access must be multi-layered, focusing on systemic and operational aspects of the problem.

Data in Figure 6 (frequency) and qualitative information in the text (themes) indicates that the most desirable themes were technological, policy-related, whereas the most needed themes were the financial investment, training, and intersectoral collaboration. Equitable digital access among students with disabilities is therefore achieved through a coordinated effort that incorporates technology, policy implementation, institutional responsibility and inclusive culture at both national and institutional levels.

Figure 6: Frequency of Themes related to Policy Changes and Improvements to Enhance Digital Accessibility for SWDs



Source: Information given in this graph is based on interviews data collected by author for this study.

Question 8: What policy-level suggestions would you recommend to facilitate and promote safe and equitable engagement in gig work for students with disabilities?

Interpretations of interview responses that have been given to Question 8 demonstrated that the concept of the policy-level interventions required to safeguard and fairly include students with disabilities in gig work is a complex one. The thematic analysis has produced ten connected themes, which include structural, technological, institutional, and attitudinal grounds. Figure 7 shows the frequency of these themes throughout the data set, and how they relate and connect to each other.

Digital and Physical Accessibility, as depicted in Figure 7, was the most commonly mentioned theme (13 references), which focuses on the awareness of the participants that accessible infrastructure is the key to their engagement in education as well as in gig work. The persistent gaps in the access to assistive technologies and design of learning and working environments were identified by the respondents. As an example, some of the participants underscored the necessity of making infrastructural changes and electronic tools that would support a variety of needs (SS-CASE-IT;

NUST). The policy suggestions in this sphere are based on the creation and implementation of national accessibility solutions that set the requirements to all educational facilities, digital platforms, and technologies to be available to individuals. This will allow fair participation and demonstrate an institutional adherence to the principles of universal design.

Immediately after it, there was Institutional Policies and Supports and Inclusive Gig Work Opportunities (both with 12 references) as a sign of the pervasive awareness of the role of structural and policy frameworks in developing inclusive work opportunities. The participants observed that there is a presence of disability support centers as required per the policy of Higher Education Commission but their execution is not uniform (SS-CASE-IT). Equally, other institutions, including AIR University Islamabad, have started to offer all students one-hour paid employment opportunities, which are scalable models of inclusion. At policy level, efforts should thus aim at normalizing disability support in institutions, requiring them to have inclusive gig work programs and to make the latter flexible, digitally-accessible, and oriented towards the needs of disabled students.

The Support Systems and Services theme (10 references) further made a case on the significance of institutional mechanisms that provide preventive as well as responsive services. Proactive institutional involvement was mentioned by interviewees as they cited monthly sessions in Student Affairs and buddy systems to assist students who are facing challenges (NUTECH). Policy suggestions encompass the institutionalization of these programs by regulation systems that would make institutions to offer holistic support systems comprising of counseling, peer mentorship, and administrative support. These acts will guarantee that disabled students get multi-dimensional assistance during their learning and career experiences.

Technological Adaptations and Developments (9 references) were also well-represented and they took the place of innovation to reduce accessibility disparities. Such mentions as software magnifiers and special PCs (NUTECH) are indicators of awareness of the potential of technology to empower the students. At the policy level, this would require more funding on assistive technologies, faculty training on digital, and incorporation of principles of universal design in all the technology platforms used within the institution. Such measures would increase digital inclusion and decrease involvement barriers of the gig economy.

The topic Challenges Faced by Disabled Students (7 references) showed that systemic, infrastructural, and attitudinal barriers impeding equitable engagement still persist. The participants reported the deficiency of professional guidance, the problem of digital access, and the lack of institutional awareness (SS-CASE-IT; NUST). The policy recommendations should, therefore, aim at undertaking a holistic capacity building initiatives that are able to mitigate not only the physical but also the attitudinal barriers by sustaining training, awareness and inclusive practices in governance.

Themes in the middle range like Economic Opportunities and Skills Training (4 references) emphasized the key role of providing students with competencies that are relevant in the market. According to one of the participants, it must have special workshops which can help these disabled students to develop abilities and knowledge (NUTECH). It was also proposed by the participants that HEC should organize special training and workshops and bind institutions by policy so that such

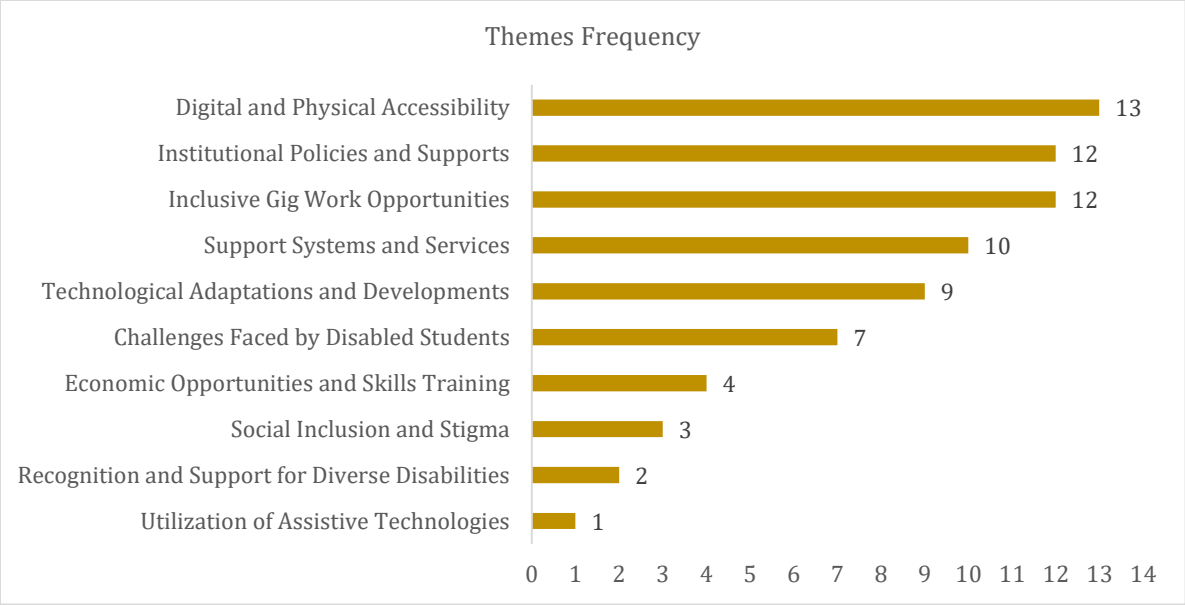
initiatives will be carried out in an orderly manner. The inclusion of inclusive skill development programs in the education policies will guarantee the acquisition of skills by students with disabilities that will enable them to flourish in the digital economy.

Social Inclusion and Stigma (3 references) and Recognition and support of diverse disabilities (2 references) were themes that supported the importance of continuing to challenge the exclusionary attitudes and broaden institutional knowledge about disability diversity. There are reports of stigmatization or not fitting in with members of the department (SS-CASE-IT; RWU) that indicate that structural barriers remain with cultural ones. There should be policy initiatives such as compulsory diversity and inclusion training between the students and staff members, as well as specific awareness campaigns to encourage empathies and social integration. Moreover, it is important to note that the complete range of disabilities necessitates specialized policies and adaptive support systems, especially among the students with a visual or hearing impairment (IST).

Lastly, the Utilization of Assistive Technologies (1 reference) turned out to be a mature yet poorly developed policy region. Respondents mentioned the necessity to give the access to the necessary tools like Braille printers and screen readers that are still difficult to find. The interventions at the policy level should thus focus on the funding of assistive devices by institutional subsidies, lending schemes, and collaborating with technology distributors to make them affordable and sustainable. Overall, the Question 8 results suggest that to facilitate safe and fair access to gig work by students with disabilities, a multi-faceted policy should be implemented, covering the aspects of infrastructural accessibility, institutional leadership, skills training, and cultural encompassment.

The frequency data introduced in Figure 7 shows that the most common themes were the accessibility and policy-related ones, and the qualitative data confirm the necessity of integrative frameworks of technological innovation and inclusive institutional practice. Detailed, binding and fair policies will play a crucial role in ensuring that students with disabilities are not only accommodated, but also enabled to play a full role in the dynamic world of gig work.

Figure 7: Frequency of Themes related to Policy-Level Suggestions for Promoting Safe and Equitable Gig Work Engagement among SWDs



Source: Information given in this graph is based on interviews data collected by author for this study.

4.2. Phase II - Quantitative Analysis

4.2.1. Demographic Analysis

Table 1 below contains the summarize information related to demographics of this study. The total number of respondents for this is 176 students with disabilities current enrolled in different universities of Pakistan located in the twin cities of Islamabad and Rawalpindi.

As per detail give, Male respondents account for 65% (114) of the total participants, while remaining 35% are female respondents. Similarly, most of the respondents (68%) belonged to the age group of 20-30 years old and remaining respondents are 22% and 10% belonged to the age <20 and >30 respectively. As far as respondents' current education is concerned, 72% of the respondents are equipped with undergraduate education and 49% are qualified with graduate level education. Similar data is depicted in Figure 8 below.

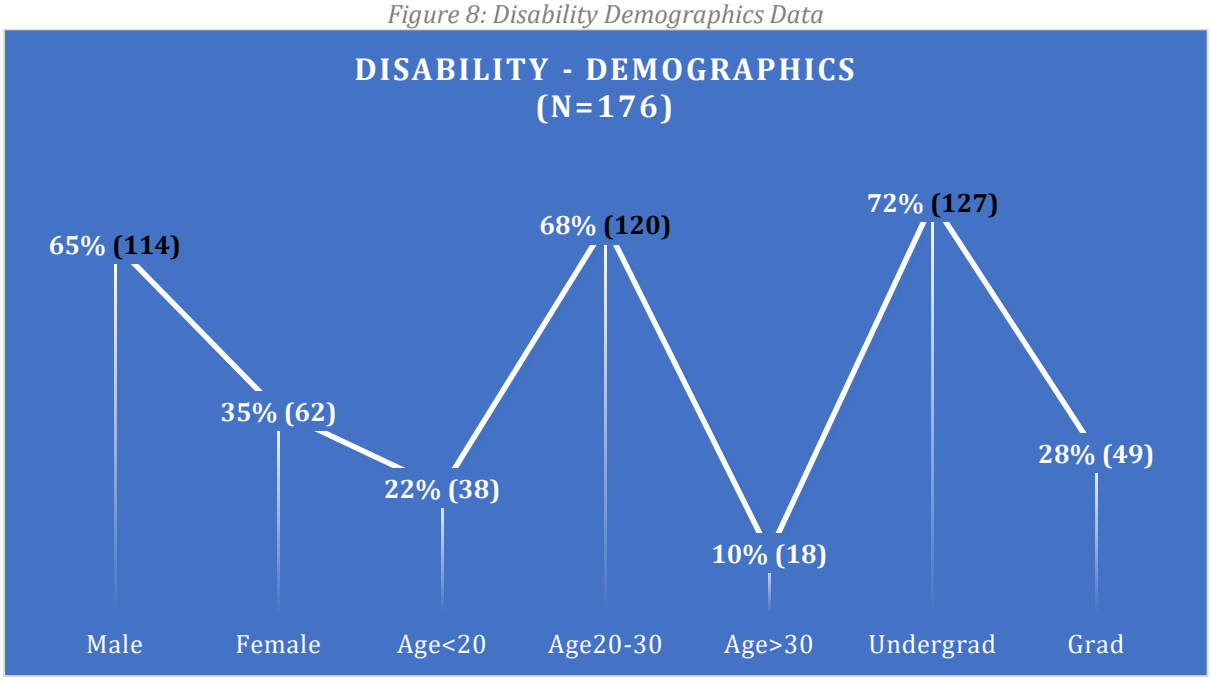
Table 1: Demographics

S. No	Type of Disability	Total	Gender		Age			Education	
			Male	Female	<20	20-30	>30	UG	Grad
1	Visual Impairment	60	35	25	9	48	3	42	18
2	Hearing Impairment	8	7	1	3	5	0	6	2
3	Mobility Issues (Physical)	79	51	28	14	53	12	56	23
4	Amputation	10	8	2	5	4	1	7	3
5	Dual Sensory Loss (Deafness & Blindness)	0	0	0	0	0	0	0	0
6	Autism Spectrum Disorder (ASD)	2	2	0	0	2	0	2	0
7	Other	17	11	6	7	8	2	14	3

Total	176	114 (65%)	62 (35%)	38 (22%)	120 (68%)	18 (10%)	127 (72%)	49 (28%)

Source: Authors' computations.

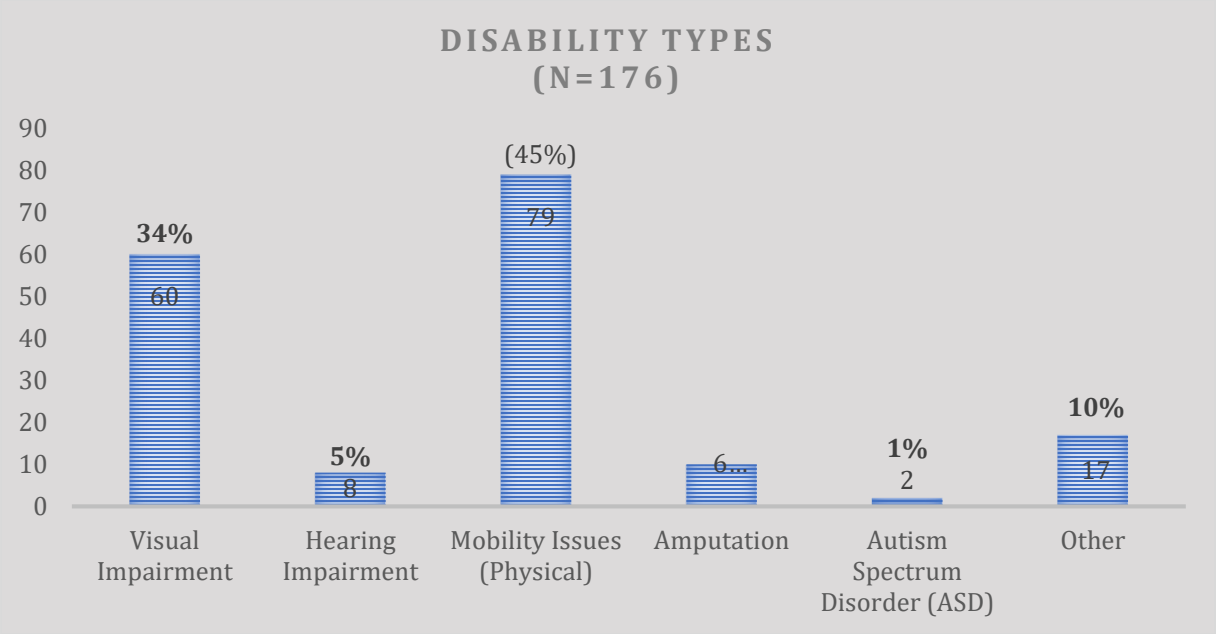
Figure 8: Disability Demographics Data



Source: Information given in this graph is based on data collected by the author through an online survey.

Disability Types: Figure 9 below reflects that two types of the disabilities are currently require immediate attention at HEIs. A significant number of respondents (45%) are suffering with physical disability which greatly hinders their mobility and presents considerable challenges for SWDs to perform routine tasks during their studies at HEIs. This is followed by another significant challenge for visually impaired students which accounted for 34% of overall respondents currently studying in HEIs. This number also reinforces the need for specialized services and support for the visually impaired students at HEIs.

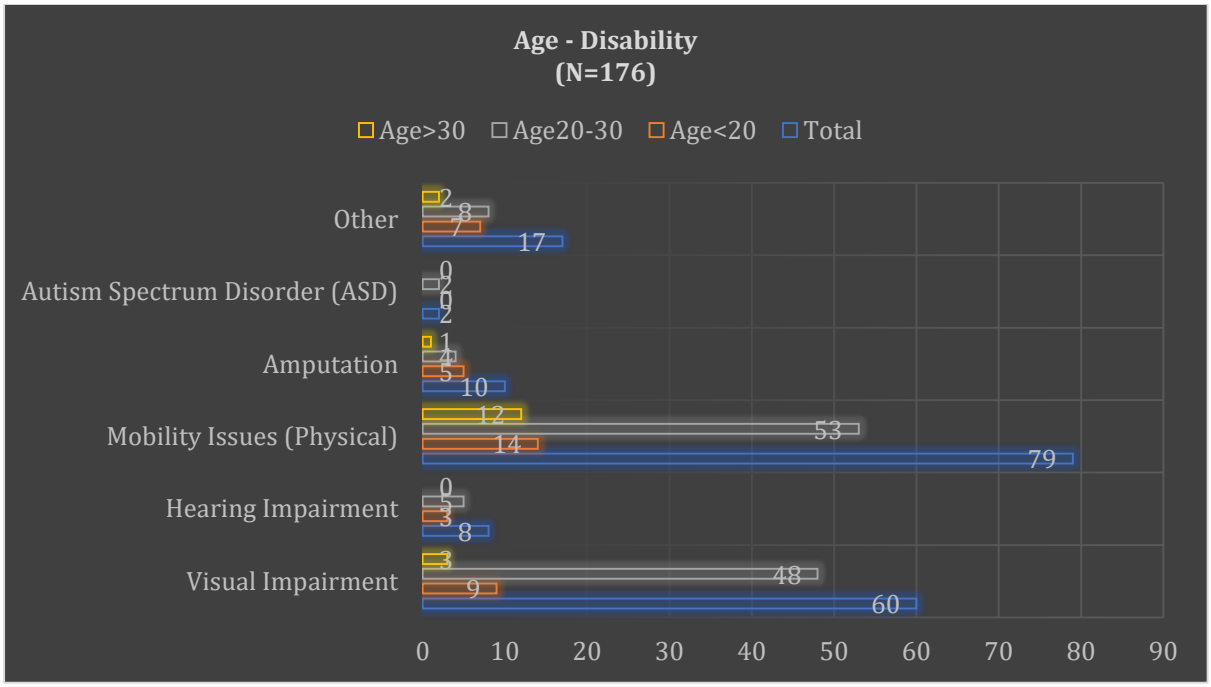
Figure 9: Disability Types Data



Source: Information given in this graph is based on data collected by the author through an online survey.

Age-Disability: Figure 10 presents a reflection of age groups with respect to the respondents' disability data which indicates a considerable number of respondents (53 out of 79) suffering from mobility issues with physical disabilities belong to the age-group of 20-30 years. This is followed by another significant number (48 out of 60) of respondents who are presently dealing with the disability challenges due to visual impairment also belong to the same age group. Another group of 15 respondents in the age groups below 20 and 20-30 are confronting other disabilities issues such as epilepsy and anxiety etc. while 10 respondents in all age groups are reported with facing challenges due to amputations.

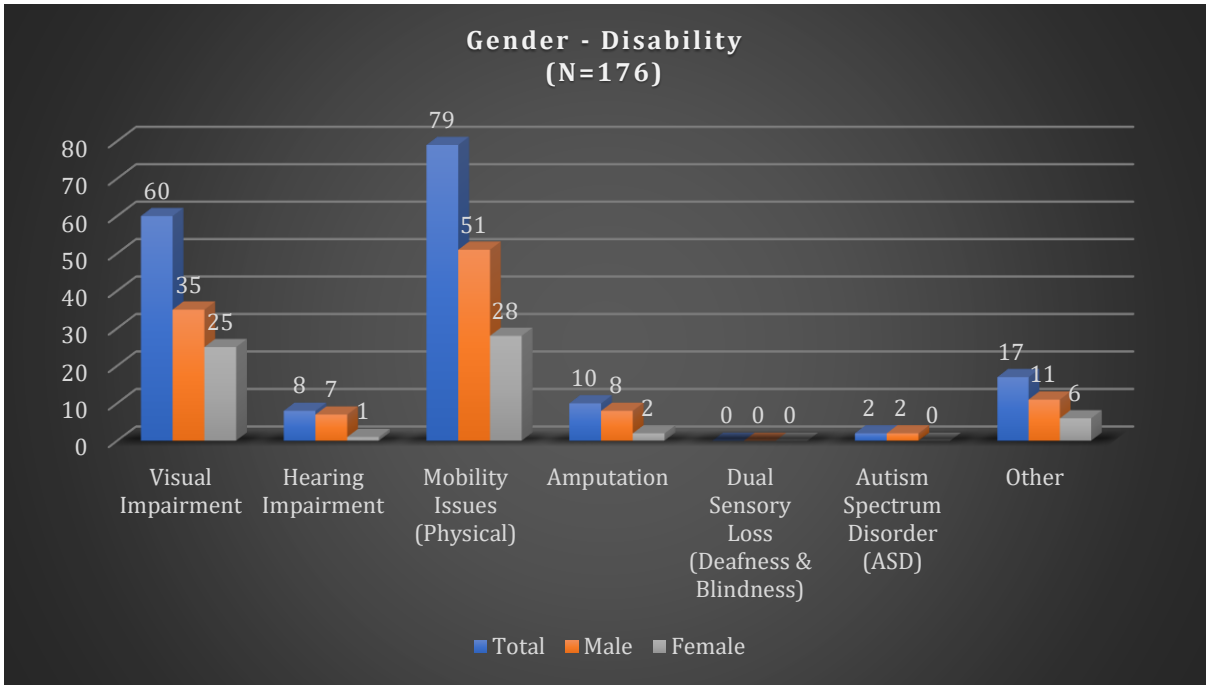
Figure 10: Age-disability Data



Source: Information given in this graph is based on data collected by the author through an online survey.

Gender-Disability: Figure 11 presents the gender-disability matrix. The data revealed that the disability due to physical mobility is the biggest challenge for most of the respondents as 51 male and 28 female out 79 respondents are facing mobility issues. Second most confronted disability challenge for respondents is the visual impairment as 35 male and 25 female out of 60 respondents are dealing with this challenge. This presents a significant concern for HEIs to provide specific support and facilitation for effectively dealing with the challenges of mobility and visual impairment on priority basis.

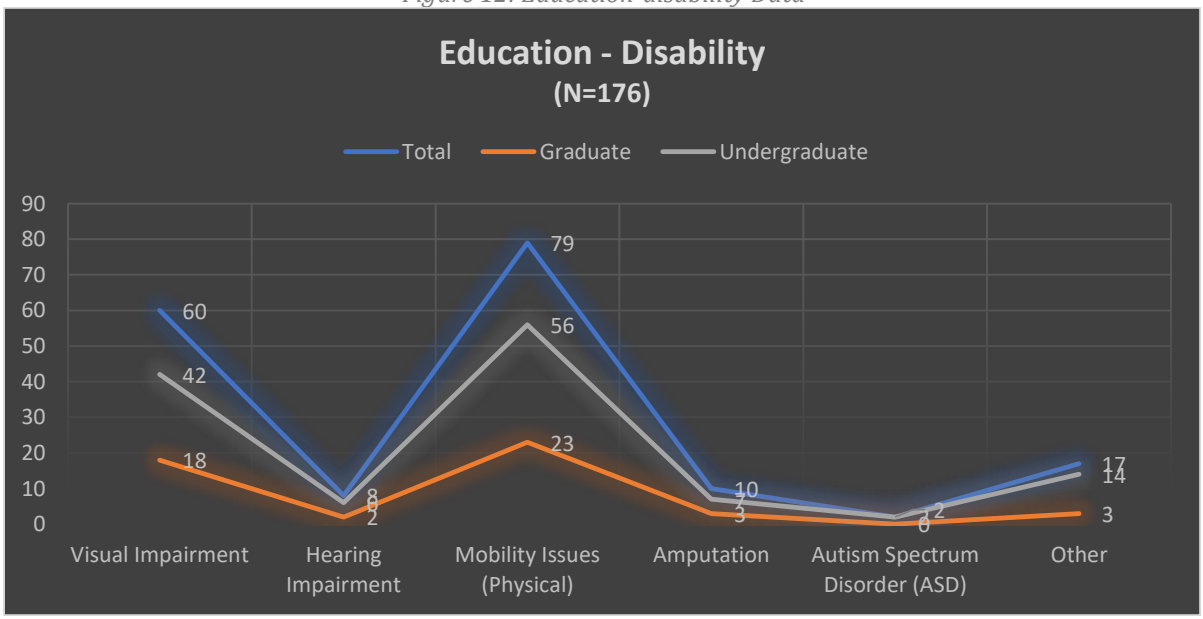
Figure 11: Gender-disability Data



Source: Information given in this graph is based on data collected by the author through an online survey.

Education-Disability: Figure 12 provides useful stats related to education and disability combination. Most respondents (5 out of 79) with physical mobility issues are either undergraduate qualified or currently enrolled in undergrad programs at different HEIs. Second most strong group of respondents (42 out of 60) with visual impairment is also possess undergrad education. Similarly, respondents with graduate education also reflect a considerable number of SWDs in these categories (physical mobility and visual impairment). This presents key insights for HEIs to prepare and provide necessary support for SWDs at undergrad level in order to ensure their well-being.

Figure 12: Education-disability Data



Source: Information given in this graph is based on data collected by the author through an online survey.

4.2.2. Descriptive Analysis

Table 2 presents the descriptive statistics for Digital Accessibility (DigAcc), Gig Work Engagement (GigWEng), and Financial Wellbeing (FinWelb). Digital Accessibility has the highest mean score (M = 3.78, SD = 1.04), indicating that respondents generally perceive a relatively high level of accessibility in digital learning environments. Gig Work Engagement shows the lowest mean (M = 2.29, SD = 1.24), suggesting limited participation in gig-based work among respondents. Financial Wellbeing records a moderate mean score (M = 2.65, SD = 1.21), reflecting average perceptions of financial security and stability.

Skewness and kurtosis values for all variables fall within acceptable ranges (±1), indicating that the data are approximately normally distributed and suitable for further multivariate analyses.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
DigAcc	176	1.00	5.00	3.7818	1.03808	-.735	.183	.009	.364
GigWEng	176	1.00	5.00	2.2875	1.23726	.825	.183	-.327	.364
FinWelb	176	1.00	5.00	2.6477	1.20854	.468	.183	-.790	.364
Valid N (list wise)	176								

Source: Authors' computations.

Gig Work Participation and Platform Use: Table 3 offers descriptive information about the current usage of gig platforms by students with disabilities. The findings indicate that overall participation in gig work is low; however, a certain number of students are involved in working on the platform. Approximately, 17 percent of respondents reported earning money in the last 12 months by using gig platforms, and nearly one-fifth stated that they spent at least five hours each week on gig-related activities. Also, a quarter of students reported that the gig work gives them an opportunity to use their skills in a manner that cannot be accomplished in traditional, real job employment. It is important to note that nearly a third of surveyed people recognized gig work as a significant source of income in addition to scholarships or grants, even though the perceived ease of use of the platforms was moderate. All of this is indicative that gig platforms are being utilized selectively and unevenly, not in the form of widespread or institutionalized employment opportunities, but as a useful factor in the economic advancement of a non-negligible group of students with disabilities.

Table 3: Gig Work Participation and Platform Use Indicators Among SWDs (N = 176)

Indicator	Evidence from Survey Responses
Students reporting income earned through gig platforms (past 12 months)	17.0%
Students spending ≥5 hours per week on gig work activities	19.3%
Students using gig work to apply skills beyond traditional campus jobs	25.0%
Students who find gig platforms easy to use	28.4%
Students for whom gig work is an important income source	29.6%

Note: Percentages represent respondents who selected Agree or Strongly Agree.
Source: Authors' computations.

4.2.3. Factor Analysis

Table 4 presents the outcomes with the exploratory factor analysis based on Principal Component Analysis together with Promax rotation. This analysis demonstrates that there is a strong three-factor model, which is related to Digital Accessibility, Gig Work Engagement, and Financial Wellbeing. All items load well on their constructs and factor loadings are beyond the recommended 0.60 threshold indicating high convergent validity. The loadings of Digital Accessibility items are in the range of 0.724 to 0.836 which indicates that these items are always able to measure the capability of students to access and navigate digital learning materials. Gig Work Engagement items have a loading range of 0.683-0.903, indicating the strong measurement of participation, the usability and the income of the gig platforms. In Financial Well-being items, also, the loading measure is high (0.704 to 0.906), which shows that the construct is clear in relation to financial control, security, and future confidence. The rotation is converged successfully and this confirms the stability of the factor solution.

Table 4: Factor Analysis

Items	DigAcc	GigWEng	FinWelb
DA1	.795		
DA2	.836		
DA3	.823		
DA4	.748		
DA5	.724		
GW1		.757	
GW2		.865	
GW3		.903	
GW4		.880	
GW5		.683	
FW1			.704
FW2			.761
FW3			.716
FW4			.906
FW5			.868

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Source: Authors' computations.

4.2.4. Reliability Analysis

The results of reliability of all the study constructs are provided in Table 5. Digital Accessibility has a good internal consistency is shown by Cronbach alpha of 0.848. Gig Work Engagement has a great deal of reliability (a = 0.889), and Financial Wellbeing has high levels of reliability (a = 0.879). The values of all values are greater than the recommended value of 0.70, which proves that the measurement scales are not only reliable but also can further be analyzed.

Table 5: Reliability

Scale	No of Items	Cronback Alpha
DigAcc	5	0.848
GigWEng	5	0.889
FinWelb	5	0.879

Source: Authors' computations.

4.2.5. Correlation Analysis

In Table 6, the correlation test shows that the study variables are correlated with each other significantly. The positive correlations between Digital Accessibility and Gig Work Engagement ($r = 0.159$, $p < 0.05$) and Financial Wellbeing ($r = 0.238$, $p < 0.01$) indicate that the better the digital access, the higher the engagement in the gig work and the higher the financial well-being. The Correlation between Gig Work Engagement and Financial Wellbeing is highly positive ($r = 0.600$, $p < 0.01$), which implies that the higher the engagement in gig work is, the higher the financial outcomes are. These results confirm the theoretical assumption that digital inclusion and alternative opportunities to work lead to financial well-being.

Table 6: Correlations

		DigAcc	GigWEng	FinWelb
DigAcc	Pearson Correlation	1	.159*	.238**
	Sig. (2-tailed)		.035	.001
	N	176	176	176
GigWEng	Pearson Correlation	.159*	1	.600**
	Sig. (2-tailed)	.035		.000
	N	176	176	176
FinWelb	Pearson Correlation	.238**	.600**	1
	Sig. (2-tailed)	.001	.000	
	N	176	176	176

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' computations.

4.2.6. Regression Analysis

Table 7 shows the findings of the multiple regression analysis of the effect of Digital Accessibility and Gig Work Engagement on Financial Well-being. Financial Wellbeing ($R2 = 0.381$) is explained by the model to the extent of 38.1 percent, which means that it has a significant power of explanation. The general model is significant to statistics ($F = 53.143$, $p < 0.001$). Financial Wellbeing is strongly positively impacted by both predictors. The positive yet comparatively lower impact is by Digital Accessibility ($b = 0.146$, $p = 0.017$), which implies that a better level of digital access leads to financial well-being to a minor degree. Conversely, Gig Work Engagement is a solid predictor ($b = 0.577$, $p < 0.001$), meaning that the engagement into gig work is a critical element of improving the financial health of students. These findings validate the idea that although the access to digital opportunities is a facilitator, active involvement in gig work has a more direct and significant effect on financial results.

Table 7: Regression

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.617[a]	.381	.373	.95665

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	97.272	2	48.636	53.143	.000[b]
	Residual	158.327	173	.915		
	Total	255.599	175			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.716	.289		2.480	.014
	DigAcc	.170	.071	.146	2.412	.017
	GigWEng	.563	.059	.577	9.513	.000

a. Dependent Variable: FinWelb

b. Predictors: (Constant), GigWEng, DigAcc

Source: Authors' computations.

4.3. Triangulation

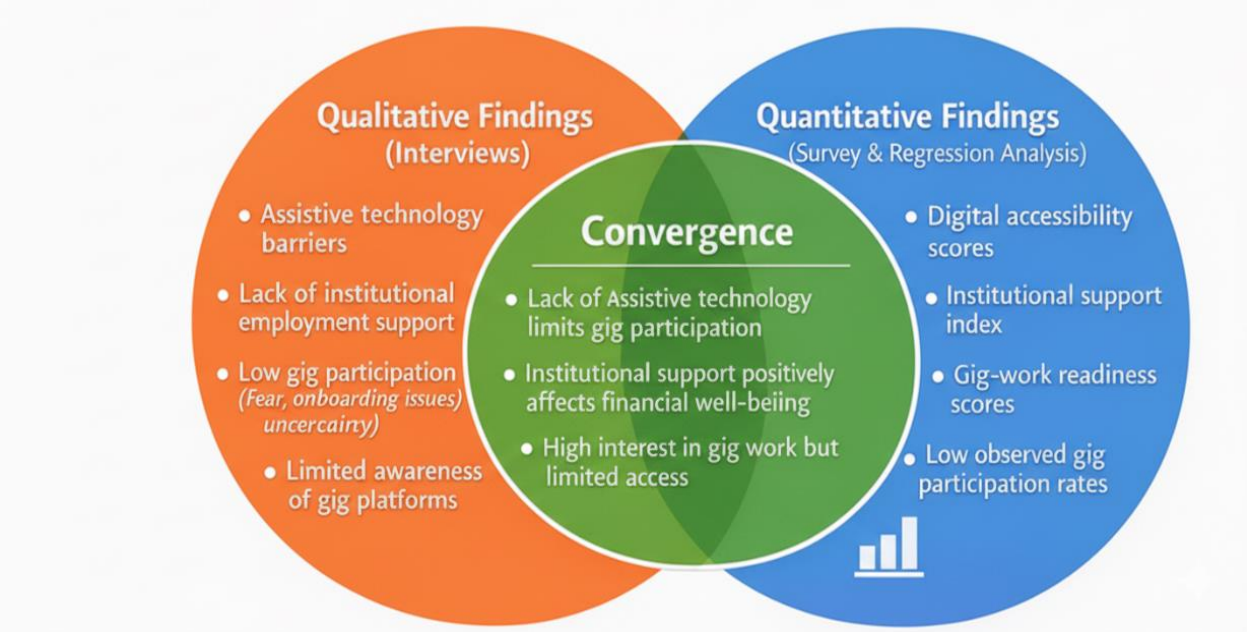
The mixed-method design presented in the current study was used to thoroughly investigate institutional policies, practices, issues, and aids associated with digital access, the involvement of gig workers, and financial well-being in relation to university students with disabilities in Pakistan. The validation, depth and explanatory power of the findings were achieved due to triangulation of qualitative and quantitative data sources which combined multiple inputs and methodologies.

Data Sources and Analytical Integration: Qualitative data were gathered by means of semi structured interviews of officials of 15 higher education institutions. These interviews gave contextual information that was rich in the sources of institutional structures, infrastructural accessibility, provision of assistive technologies, training programs, and new endeavors that promote the engagement of gig work. Thematic analysis of the most significant themes included compliance with Higher Education Commission (HEC) policies, infrastructural and technological obstacles, financial assistance mechanisms, and emerging efforts to incorporate gig work in institutional support structures. Though it was also reported extensively that there were disability support centers, accessibility committees, and counseling services, interviews also revealed large gaps in the provision of assistive technology, faculty training, and policy consistency.

Self-administered surveys were used to collect quantitative data in 176 students with disabilities. These data were measures of digital accessibility perceptions, the degree of gig work participation, and financial well-being. Statistical results supported the existence of positive correlations between these constructs, with gig work engagement being a very strong predictor of financial well-being, and the role of digital accessibility played a minor yet significant role. Descriptive statistics showed that despite the positive views of students in general about digital accessibility, the involvement in gig work is not high in reality, and overall financial safety is moderate. The soundness and internal consistency of the measurement scales were proven with the help of factor and reliability analyses.

Integrated Triangulation of Findings: To explicitly demonstrate mixed-methods integration, qualitative interview themes were systematically compared with quantitative survey and regression results. Figure 13 provides a visual representation of this triangulation, illustrating areas of convergence and divergence between the two data sources, while Tables 8 and 9 present detailed analytical comparisons.

Figure 13: Triangulation of Qualitative and Quantitative Findings



Source: Information given in this graph is based on the data collected by the author for this study.

Convergent Findings: Clear convergence was observed across multiple dimensions, indicating consistency between qualitative and quantitative evidence. These convergent results are summarized in Table 8.

Table 8: Convergence between Qualitative and Quantitative Findings

Theme	Quantitative Evidence	Qualitative Evidence
Digital Accessibility	Higher digital accessibility scores are significantly associated with greater gig-work readiness and improved financial well-being.	Students and institutional representatives consistently identified a lack of assistive technologies as a major barrier to gig-platform participation.
Institutional Support (Overall Importance)	Institutional support shows a statistically significant positive relationship with financial well-being.	Interviewees emphasized the importance of institutional engagement in fostering inclusion and student confidence.
Gig-Work Participation Levels	Descriptive statistics reveal low levels of actual gig-work participation among students with disabilities.	Most interview participants reported little or no direct experience with gig work.
Interest in Gig Work	Survey responses indicate moderate to high interest in gig work as a potential income source.	Students expressed strong motivation to engage in gig work if enabling conditions were provided.

Source: Authors' computations.

These convergent findings underscore the interconnected role of digital accessibility, institutional support, and economic participation in shaping financial outcomes for students with disabilities.

Divergent and Complementary Findings: While convergence was evident in key areas, important divergence and complementarity emerged, providing explanatory depth beyond what could be captured through quantitative analysis alone. These findings are summarized in Table 9.

Table 9: Divergence and Complementarity between Qualitative and Quantitative Findings

Theme	Quantitative Evidence	Qualitative Evidence	Interpretive Contribution
Nature of Institutional Support	Institutional support functions as a general predictor of financial well-being.	Support is largely academic, with limited focus on employment or gig-work facilitation.	Reveals a mismatch between perceived support and functional relevance for gig work.
Awareness of Gig Platforms	Awareness is indirectly inferred through readiness indicators.	Students reported limited awareness and reliance on informal peer networks.	Identifies awareness gaps not fully captured by survey measures.
Emotional and Psychological Barriers	Emotional constraints are not measured in regression models.	Fear of discrimination, uncertainty about disability disclosure, and algorithmic anxiety were prominent.	Adds dimensions absent from quantitative indicators.
Explanation of Low Participation	Low participation rates are observable but not fully explained statistically.	Onboarding complexity, income instability, and lack of mentoring were cited.	Explains mechanisms underlying quantitative outcomes.

Source: Authors' computations.

Interpretive Value of Triangulation: The triangulated analysis shows a high level of convergence between the significance of digital accessibility and a partial convergence between the significance of institutional support, whereas the qualitative results are very critical to explain the low level of participation in gigs in spite of reported interest. The mixed-methods approach enhances the consistency and accountability of the findings by explicitly demonstrating on what the sources of data agree and differ.

In general, this triangulation confirms that institutional digital access and enabling gig work activity is a vital resource to the overall promotion of financial well-being of students with disabilities and informs about the aspects that need to be developed further. The combined evidence base will serve as the basis of actionable policy specifications aimed at assistive technology investment, faculty and staff training, structured gig-readiness, and the formal institutionalization of gig work engagement in institutional support mechanisms so as to achieve inclusive and sustainable economic performance in Pakistan.

FINDINGS AND DISCUSSION

The results of this paper offer an in-depth insight into the institutional policies, practices, and issues of digital access, the use of gig work, and the financial well-being of students with disabilities (SWDs) at Pakistani universities.

The combination of qualitative and quantitative data provides a subtle insight into the existing situation regarding inclusiveness in higher education institutions (HEIs) and points to the key areas of change. Qualitative analysis indicates that even though most institutions are complying with the Higher Education Commission (HEC) policies, such as the 2021 disability policy, there are severe gaps to uniform implementation. In various institutions, there are disability support centers or committees which are actually dedicated to providing disability support, but the degree to which the support is effective differs to a significant extent. Considerations of physical infrastructure changes like ramps, elevator, and accessible washroom have taken precedence but in older universities and some campuses, there are still significant infrastructural constraints.

Activities around digital accessibility such as accessible websites and assistive technologies by providing screen readers, magnifiers, etc are present but are unevenly distributed and insufficiently resourced among institutions. Such observations resonate with the previous studies that stressed the significance of available infrastructure and online platforms in inclusive education (Brewer et al., 2025; Nieminen, 2023). Technological support turns out to be a key element that would allow SWDs to be involved in both academic and gig jobs. Such innovative devices as symbolic language gloves and electric wheelchairs show good development but need more popularization and long-term investments.

The qualitative data indicate the need of psychological and counseling services, and acknowledges the social and emotional aspects of disability support as essential in the overall student well-being (Poulsen & Kvale, 2018; Munjanja & Hendricks, 2024). But the effectiveness of these supports is curtailed because faculty, staff and student training and awareness efforts are poor. This corresponds with the current body of work that has shown the necessity of inclusive training to promote inclusive pedagogies and decrease the stigma (Hartrey, et al., 2017; Paz-Maldonado, 2020). The development of gig work as a potential source of employment to SWDs is an important discovery.

Although workshops, training, and access to freelancing platforms are already being offered in some HEIs, there are few or no institutional policies that legitimize the engagement of gig workers. These positive relationships between digital accessibility, engagement in gig work, and financial well-being imply that improving digital access can significantly improve the economic success of disabled students. Such findings support the universal findings that suggest that gig work can enable people with disabilities to be more economically empowered and receive flexible employment opportunities (Harpur & Blanck, 2020; Schulte et al., 2022).

The hindrances of the institution in terms of technological gaps, lack of funding and time lag are the barriers to improvement. Inadequate digital infrastructure, absence of specific equipment, and unreliable internet connections limit the potential to get involved in gig work on the part of the students. In addition, the nature of curricula and lack of content that focuses on the gig economy inhibits skill development required to succeed. These results align with the literature that has found

the lack of digital literacy and inclusive curriculum as the obstacles to economic participation of disabled students (Jetha, 2023; IQRA UNI transcripts). This divide needs to be narrowed by urgently introducing curricular reforms that incorporate digital literacy, entrepreneurship, and gig economy skills that are specific to the needs of the SWDs (UOW transcripts).

The recommendations on the policy level follow the necessity of having set, inclusive schemes that require accessibility criteria, fund allocation, and institutionalized training schemes. The development of special support centers, collaboration between institutions, and the development of partnerships with inclusive gig platforms are important measures to improve the opportunities and support of disabled students.

Also, it is essential to deal with social stigma with the help of inclusive campus cultures and awareness campaigns to provide the environment favorable to economic integration and academic achievements (SS-CASE-IT transcripts; FJWU transcripts). These policies are in line with Sustainable Development Goals (SDGs) 4, 8 and 10, which favor equitable education, decent work and decreased.

The combination of qualitative perspectives with quantitative findings highlights the interrelatedness of the institutional assistance, the digital accessibility and the economic involvement in the formation of the financial welfare of SWDs. This combined knowledge will guide practical suggestions to be made by HEIs and policymakers to implement all-encompassing strategies that encourage inclusivity, empowerment, and sustainable involvement in the gig economy. Although the development of policies by the institutions to streamline with the national instructions and to enhance physical and digital access has been achieved, there are enormous challenges. The mitigation of technological shortages, faculty development, increased funding, and institutionalization of gig employment are urgent to promote the promotion of fair educational and economic results of students with disabilities in Pakistan.

Finally, the paper identifies the disruptive possibility of inclusive digital spaces and participation in the gig economy and recommends long-term institutional investment and policy development to maximize the potential. Future studies should examine how the engagement in gig work has had longitudinal effects on the career path of disabled students and the effectiveness of the new policies and programs in place.

CONCLUSION

The results indicate the existence of a systemic flaw in the gap between the intent of the national policy and institutional practice. Although the HEC policy offers a fundamental framework, its implementation into practical support of students with disabilities, in particular, the participation in gig work, is poor. Universities have to pursue an inclusive approach, which embraces digital access, institutional responsibility, skill building, and cultural change with the goal of making sure every student can enjoy the new economic opportunities fairly.

Higher education institutions in Pakistan are at crossroads to change the disability inclusion policy in the institutions not as a mere show of commitment but into a practical model that can empower students with disabilities to succeed in educational and economic fronts. Institutional policies reinforcement, accessibility, increased training, and institutionalization of the engagement strategies of the gig economy will see to it that students with disabilities are not accommodated but engagement strategies of the gig economy, instituted, and formalized, will ensure that students with disabilities are involved as active participants in the digital future of Pakistan. Universities can transform the purpose of higher education as a catalyst of inclusive innovation, economic empowerment, and social justice by implementing digital inclusion and fair access to gig work.

POLICY RECOMMENDATIONS

Based on findings of this study, followings are the policy recommendation to develop an inclusive eco-system which facilitates and supports SWDs with improved digital accessibility and gig-work engagement.

1. **Enforcing Comprehensive Implementation of HEC Disability Policies:** To go beyond the symbolic compliance, the Higher Education Commission (HEC) ought to put in place a national monitoring, evaluation, and reporting system that will be used to guarantee the holistic and equal application of its disability inclusion policies in all institutions of higher learning (HEIs).

2. **Establishing and Reinforcing Disability Support Centers:** All HEIs must be required to put up or strengthen a special Disability Support Center (DSC) as the main institutional mandate that will lead the coordination of the services offered to students with disabilities. Such centers must be run within well spelled out mandates which include academic accommodations, digital accessibility, physical accessibility, assistive technology, counseling referral, and contact with faculty and administrative units.

3. **Creating Gig Work Support Cells within Universities:** In response to the rise in significance of the gig economy as a non-discriminatory and flexible career trajectory, universities ought to create Gig Work Support Cells (GWSCs) that target students with disabilities specifically.

4. **Embedding Gig Economy Skills and Diversity Inclusion within Academic Curricula:** Digital literacy, entrepreneurship, and gig economy skills ought to be embedded in the undergraduate and postgraduate curriculum of higher education institutions with particular modifications aimed at students with disabilities.

Diversity and inclusion (D&I) education must be integrated into the curriculum of every single discipline in universities and colleges instead of being isolated in workshops or elective classes to produce sustained cultural change in higher education institutions.

5. **Developing Partnerships with Inclusive Gig Platforms and Employers:** Universities must be more proactive in forging strategic relationships with inclusive gig platforms, technology companies, and employers in the revenue sector to develop avenues into digital employment among students with disabilities.

The inclusion in the gig economy needs a collective response of the educational institutions, policy makers, and industry participants in order to be sustainable. Universities ought to collaborate with the HEC and the partners in the private sector to co-design inclusive employment opportunities in an attempt to match academic preparation with the demands of the labor market.

6. **Encouraging Inter-Institutional Collaboration and Resource Sharing:** The HEC must be proactive to support the planned cooperation between universities that specialize in disability inclusion and gig facilitation to combat the diversity of capacity and resources among higher education institutions. This may involve the formation of inter-university networks or consortia to share best practices, training resources, assistive technology, and digital accessibility knowledge.

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APPENDICES

Appendix-I: Interview Questionnaires (Qualitative Study)

Research Title: From 'Disable' to 'Gigable': Leveraging Gig Platforms for the Inclusivity and Wellbeing of People with Disability

HEI Name: _____

City: _____ Public/Private Sector: _____

Respondent's Designation: _____

S#	Interview Question
1	Does your Institute have a "Disability Support Center"? □ Yes □ No
2	What are the major institutional policies and practices that support students with disability? • _____ • _____
3	What are the major challenges and barriers faced by the students with disability? • _____ • _____
4	What technologies/equipment you use to support students with disability? • _____ • _____
5	What are the major institutional policies that support gig-work engagement of students with disability? • _____ • _____
6	What are the institutional constraints or restrictions in providing support for gig-work engagement to the students with disability? • _____ • _____
7	What policy changes would you suggest to enhance "digital accessibility" for students with disability? • _____ • _____
8	What policy changes would you suggest regarding gig-work engagement for students with disability? • _____ • _____

Appendix-II: Survey Questionnaires (Quantitative Study)

Research Title: From 'Disable' to 'Gigable': Leveraging Gig Platforms for the Inclusivity and Wellbeing of People with Disability

Section 1: Demographic Information:

1. Age: [ ] <20 [ ] 20-30 [ ] >30

2. Gender: [ ] Male [ ] Female [ ] Other

4. Type of Disability: [ ] Physical [ ] Sensory [ ] Mental Health

Other (please specify):

_____

5. Level of Education: [ ] Undergraduate [ ] Graduate

Other (please specify):

_____

Section 2: Survey Questionnaire

Instructions: Please answer all of the following questions using the following 5-Point Likert Scale

(please √ only one option):

1=Strongly Disagree (SD) 2=Disagree (D) 3=Uncertain (U) 4=Agree (A) 5=Strongly Agree (SA)

Sr.	Items	SD	D	U	A	SA
Digital Accessibility (5 Questions) Items adapted from the Accessible Usability Scale (AUS) and WCAG success criteria						
1	I can easily navigate my university's online learning platforms using my assistive technology (e.g., screen reader, magnifier).	1	2	3	4	5
2	Course videos and webinars include captions or transcripts that meet my needs.	1	2	3	4	5
3	All downloadable documents (e.g., syllabi, lecture slides) are provided in formats accessible to me (e.g., tagged PDF, accessible Word files).	1	2	3	4	5
4	Interactive elements (quizzes, discussion boards) are fully operable with keyboard-only navigation.	1	2	3	4	5
5	Error messages and instructions on online forms are clear and understandable to me.	1	2	3	4	5
Gig-work Engagement (5 Questions) Items adapted from Pew Research Center's gig work survey methodology and EPI estimates on gig-economy participation.						
6	I have earned money through an online gig platform (e.g., Fiverr, Upwork, Careem etc.) in the past 12 months.	1	2	3	4	5
7	I currently spend at least 5 hours per week on gig-work activities.	1	2	3	4	5
8	Participating in gig work has allowed me to use my skills in ways traditional on-campus jobs do not.	1	2	3	4	5
9	I find gig-work platforms easy to use for finding and completing tasks.	1	2	3	4	5
10	Gig work is an important source of income for me alongside any scholarships or grants.	1	2	3	4	5
Financial Well-being (5 Questions) Items reflecting the four elements of financial well-being defined by the CFPB.						
11	I have control over my day-to-day and month-to-month financial situation.	1	2	3	4	5
12	I have the capacity to absorb a major unexpected expense.	1	2	3	4	5
13	I am on track to meet my financial goals (e.g., saving for future needs).	1	2	3	4	5
14	I have the financial freedom to make choices that allow me to enjoy life.	1	2	3	4	5
15	I feel secure and confident about my financial future.	1	2	3	4	5