



Exploring Digital Inclusion Strategies for Addressing Educational Inequalities in Rural Context of Pakistan: Students' Perspectives from PITP Program in Larkana, Pakistan

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Abstract

This qualitative, exploratory research paper explores the benefits of digital inclusion policies in reducing the education gap between rural and urban technical education in Pakistan through the lens of participants of the People's Information Technology Programme (PITP) in SZAB-Tech Larkana. A constructivist approach was employed to collect data by conducting six semi-structured interviews with purposively sampled rural students and analyze thematically to elicit common patterns in their experiences with access to technology, use of digital learning tools and academic challenges. Findings indicate that although digital technologies hold practical promise to enhance conceptual learning, encourage self-directed study, and enhance employment opportunities, students are still confronted with considerable barriers that further divide urban and rural communities and undermine interaction, inspiration, and marketability, including limited technology access, poor internet connectivity, insufficient training in hands-on ICT, outdated institutional technology, and socio-economic and cultural barriers. Although the small, one-institution sample used hinders generalizability, the results provide useful recommendations: improving internet connectivity, updating the laboratory, increasing access time, integrating applied training in ICT into curricula, and providing subsidies on devices and internet access to rural students, providing novel evidence to an underrepresented research field.

Key words: Digital Inclusion, Technical and Vocational Education (TVET, Rural–Urban Education Gap, Digital Divide



Introduction

INTRODUCTION

Education is a right of all human beings and is a key factor in social and economic development. Educational technologies have been playing a privileged role to ensure digital inclusion and to enhance education (Dussel, 2026). In Pakistan, socioeconomic inequality, infrastructure and technical limitations particularly in the rural regions, continue to skew and poor access to quality education. Technical and Vocational Education is essential to provide the students with a practical skill to work and create businesses and enable them to participate in the economy (Shukla et al., 2024). In remote communities, however, access to learning resources is frequently a key issue, especially to access digital resources and platforms, which have become increasingly important in learning. One of the strategies in dealing with educational inequities is digital inclusion whereby equal access to technology, technological competencies and pertinent information online are ensured. Utilizing digital tools in Technical Education (TE) enables institutions to make the learning process more interactive, provide more effective learning results, and prepare students with the tools that they will require in the ever-changing workforce (Hou, 2024). Although digital inclusion is important, it is still low in rural Pakistan as a result of a complex of factors, such as infrastructure Challenges, low digital literacy, and socio-cultural barriers, which prevent pupils accessing and using technology-enabled learning.

SZAB-Tech Larkana is a technical and vocational education, which offers education to many rural students pursuing diploma and certificate programs. The institute has achieved a lot in digitization of learning tools, yet there are notable gaps of digital access and use among a number of students. We should make sure that these gaps are interpreted and discuss possible practical ways of digital inclusion so that every pupil could have a chance to excel in the academic sphere and his/her professional activities. Technical programs provided in SZAB-Tech Larkana are experiencing a myriad of issues that restrict educational prospects of the rural students. Inadequate digital device access, erratic internet connectivity, low levels of digital literacy, and a dearth of locally or contextually appropriate learning resources are some of these. This means that some children will not be able to fully engage in technology-rich learning settings, and educational inequities persist. Therefore to counteract these challenges, alleviate educational disparity and better the educational experience of rural students of technical education, this project aims to investigate the possibility of digital inclusion strategies.

This research has implications on a number of fronts, each of which leads to a deeper insight into digital inclusion in technical education. To begin with, the study has definite practical implications. Through a keen observation of the difficulties experienced by distance learners, the study can make concrete and practical suggestions to SZAB-Tech and other similar institutions on how to enhance the access, improve the infrastructures and establish more viable support systems to students who learn remotely. In addition, the study has significant policy implications. Its results directly address the interests of the government agencies and policymakers dealing with the problem of digital divide in the framework of technical education, especially in the context of rural populations struggling to keep up with the advances of the urban ones.



Likewise, the study contributes to the academic field positively. It contributes to the existing literature on the topic of educational equity and digital inclusion, deepening the discussion of these concerns in the specific context of low-resource countries such as Pakistan, where there is still a dearth of empirical evidence. Lastly, the research is core oriented on the empowerment of students. Lighting up on the obstacles faced by rural learners, as well as the approaches that can remove them, the research aims to enhance their academic involvement, help them cultivate the necessary skills, and eventually increase their chances of economic empowerment in the future.

The students that will be the target of this study are those who are undertaking the technical diploma and certificate programs in SZAB-Tech, Larkana. It examines issues of digital inclusion in terms of access to devices, access to the Internet, digital literacy and engagement in online learning environments. The purpose of the exploratory study is to provide recommendations and ideas that can be utilized in similar rural TEs context in Pakistan.

Research Objectives

In this study, the researcher wants to try to find the status of digital inclusion in the program of Peoples Information Technology Program (PITP) of Larkana and its contribution to the educational equity in the rural setting. In particular, the study aims to analyse the perception of students about the impact of digital inclusion programs developed from PITP on their learning opportunities and on the equitable access to learning. It also aims to bring out the major problems students encounter when using and accessing digital resources effectively in academics in the rural setting. Also, the analysis will be based on what will allow the students of a PITP to participate in digital space meaningfully. Finally, the research will offer student-based recommendations on enhancing the digital inclusion practice of PITP programs in Larkana, which will eventually be used to reduce the gap in education and achieve a better learning experience in the rural educational system.

Research Questions

The study seeks to answer the following research questions:

1. Does the perception of the students regarding the initiatives of Digital inclusion in the PITP program in Larkana affect educational opportunities and equity in a rural setting?
2. What are the challenges faced by PITP students in Larkana to access and use digital resources for learning in rural areas?
3. Which factors are enabling for effective digital participation of students in Larkana who are enrolled in the PITP program?
4. What is the role of recommendations provided by the student in improving the digital inclusion strategies of PITP programs in Larkana in order to minimize inequalities in educational systems in rural areas?

Conceptual Framework

Conceptual framework is an important aspect of research, as it helps to explain and interpret the data collected. According to Creswell (2014), the conceptual framework is beneficial as it provides an outline and guidance to the research design, and elaborates on the theoretical foundation and linkage between variables. It assists us to know what is happening in the world, predict what might occur in the future and explain why things happened the way they did, Maxwell (2013) notes. If the case study design is not facilitated and/or informed by a conceptual framework, it can be just a description, which lacks analytical depth and rigor in order to be a scientific text or a scientific work (Yin, 2009). Conceptual framework is



extremely necessary in a research since it serves as a guide to the research and also, assists in the interpretation of the results since it guides the research design (Figure 1).

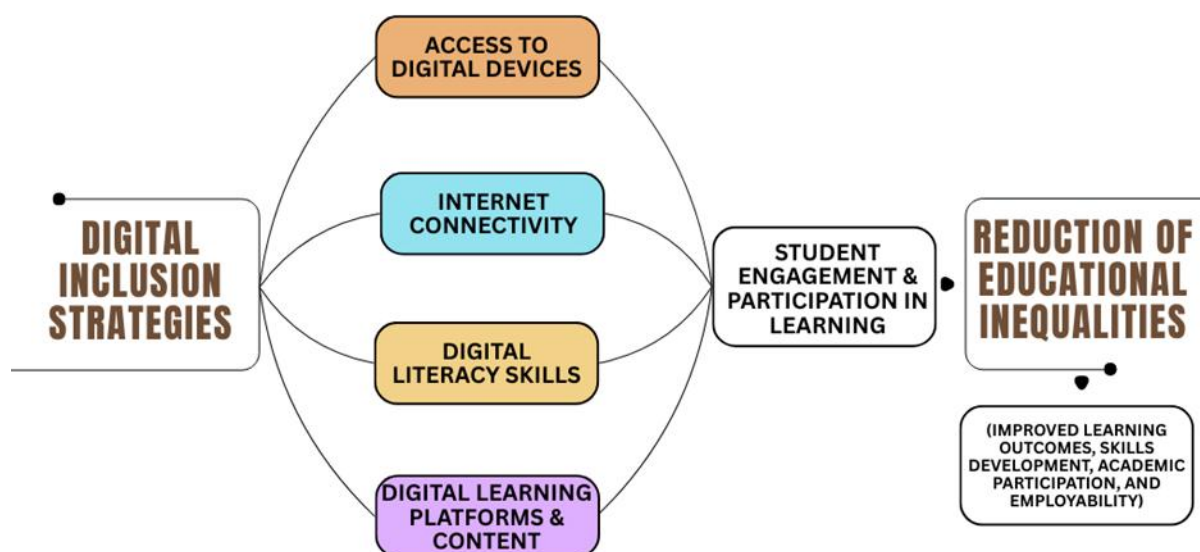


Figure 1. Conceptual Framework

The conceptual framework of this study is that digital inclusion strategies are related to educational inequalities of the students of technical courses at SZAB-Tech Larkana. The framework has been built on the principle of equal accessibility to digital resources is needed to enhance educational opportunities and decrease the inequality in rural technical education. This framework has independent variables of digital inclusion strategies initiatives. They involve the utilization of digital learning tools and resources, access and accessibility to the internet, and digital skills or capabilities, and access to digital devices. When put together, these factors can assist in establishing the degree to which the students can effectively be involved in technology enhanced learning environments. Moreover, the framework suggests that the increased digital inclusion results in increased engagement and participation in learning as one of the primary routes by which to improve learning outcomes. When students are engaged, they can gain access to the learning resources and develop technical skills, as well as actively participate in class activities. The dependent variable, which is the result of the study, is the educational inequality, which is measured as the learning opportunities, school performance, skills acquisition, and employment outcomes. The idea is that, with the effective implementation of digital inclusion techniques, these differences between rural pupils can be reduced. In general, the conceptual framework offers a rational approach to the interpretation of the application of digital inclusion as a strategic approach to mitigate educational inequities in the framework of technical education in rural regions of Pakistan.

LITERATURE REVIEW

The quick pace of digitalization of educational settings has further contributed to inequality in Pakistan, a trend encouraged by the post-pandemic transition to online and blended education. The digital divide is not only a question of hardware but a multi-layered set of geographical, socioeconomic, and gendered access limitations that do not allow access to knowledge on a fair basis (Waqar et al., 2024; Sami, 2025). These inequalities are especially



acute in rural settings, such as Sindh, where students commonly have to deal with poor infrastructure that urban students consider to be commonplace (Abbasi & Hussain, 2024; Sahito et al., 2025)

Digital inclusion policies like the PITP program in Larkana and other provincial laptop programs were aimed at making the academic engagement in the least served areas feasible. Nonetheless, the shift to digital-first education has not paid much attention to the specific difficulties of rural students (Karimi, 2025; Mathrani et al., 2023). This report is a synthesis of student views in Pakistan, which discusses the effectiveness of these inclusion strategies and its contribution towards bridging or unintentionally increasing educational inequalities.

Techniques and Approaches in the Sources

This report is based on evidence through many different types of research methods used to describe the nuances of digital inequality in Pakistan.

- a. **Mixed-Methods Surveys:** A number of studies used the assistance of large-scale surveys and interviews to evaluate student engagement. As an example, a post-pandemic study was conducted and included 400 students to compare academic performance and psychological well-being in rural and urban settings (Sami, 2025). A cross-sectional survey design was used in another study in rural Pakistan that included 650 participants to examine different aspects of poverty that affect education using regression analysis in the form of STATA and SPSS (Phull et al., 2022). A comparative study on the availability and use of ICT resources by students was conducted in Sindh comparing both the private and the public school (Abbasi and Hussain, 2024).
- b. **Case Studies and Comparative Analyses:** A study in South-Western Pakistan discussed the use of ICT in rural schools using case studies (Iqbal, 2025). The localized case studies were used to identify the determinants of synchronous e-learning in the pandemic in Southern Punjab (Irshad et al., 2022). The international outlook was also incorporated to compare the Pakistani experience with other parts of the world like Chile, where the One Laptop per Child program was tested regarding their effectiveness in the rural areas (Pavez & Farías, 2026).
- c. **Qualitative Experiences:** Qualitative research included student stories, including Gilgit-Baltistan, where students discussed the hours spent commuting to get an internet connection and the struggles with power outages during online instruction (Rehman, 2023).
- d. **Systematic and Policy Reviews:** National-level reviews explored existing practices, challenges, and future opportunities of inclusive e-learning in Pakistan, with special attention to technical, organizational, and pedagogical aspects (Muhammad et al., 2024). Other studies tracked the digital divide between undergraduate students in adjacent areas such as Bangladesh and India to offer them a regional context (Aziz & Hossain, 2024; Rannaware et al., 2022).
- e. **Situational Analysis:** Some researchers used situational analysis methods to uncover the specific impacts of COVID-19 on distance learning in rural areas of Pakistan and China (Zamir & Wang, 2023).

The Rural-Urban Digital Divide

Throughout the literature, it is evident that in Pakistan, urban and rural regions are at opposite ends in terms of access to digital and quality of education (Waqar et al., 2024). Technological readiness, access, and flexibility are rated at a significantly higher score by urban students (Jamshed & Jabeen, 2025). Conversely, the rural students experience structural inequalities that result in less academic engagement and motivation (Sami, 2025).



The lack of policy awareness and localized content have served as obstacles to the digital transformation in Sindh (Sahito et al., 2025). Most ICT environments in the region are more favorable in the private schools, with superior resources, whereas the public schools, which sometimes are the only option to rural communities, have poor computer provision, power outages, and computer illiteracy among teachers (Abbasi & Hussain, 2024). This causes a gap in general education where the performance of students is directly correlated with the quality of digital infrastructure in their institution (Abbasi & Hussain, 2024). Moreover, the digital divide is observed to be a gap that should be filled not only in the educational field but in the social context in general (Sadiq & Shahnawaz, 2024).

Infrastructural and Socioeconomic Barriers

The major challenge to digital inclusion in rural Pakistan is infrastructural deficiencies.

- a. **Internet connectivity and Power:** Students in Southern Punjab and Gilgit-Baltistan often mention bad internet connectivity and frequent power cuts (load shedding) as significant barriers (Irshad et al., 2022; Jamshed & Jabeen, 2025; Rehman, 2023). All these problems do not allow engaging in online interaction in real-time and lead to a strong mental burden and frustration (Irshad et al., 2022; Olutoyin, 2023). Students in remote locations have had to go hours out of their way to get a good internet connection to attend classes (Rehman, 2023).
- b. **Hardware Access:** Low socioeconomic status tends to limit students in buying efficient devices. Devices obtained under government programs (like the 2018 "CM scheme") have also been reported to be defective products with compromised parts and leave students without a feasible option because they cannot afford it (Irshad et al., 2022). In rural India, the same results indicate that the absence of hardware and finances are major factors that deter the use of online resources (Mariya et al., 2022).
- c. **Cost and Poverty:** Students in low-income families are further marginalized by high price of the internet (Taj et al., 2023), (Olutoyin, 2023). In rural Pakistan, poverty has been the biggest detriment to education as increasing prices compel family members to work rather than going to school, and issues related to education become secondary to survival (Phull et al., 2022).
- d. **Gender and Sociocultural Aspects**

The digital divide is overlaid with gender and sociocultural implications. Women in rural settings have their own set of difficulties, which include more domestic tasks, and social cultural controls, which restrict their online presence (Mathrani et al., 2023), (Hamid et al., 2025). The concept of digital literacy is sometimes viewed as a limited ability among minority girls in Pakistan, who have to overcome gendered, religious, and ethnic obstacles in order to gain access to technology (Hamid et al., 2025). Digital divide is also a reflection of social biases. Online higher education access is gendered in Gilgit-Baltistan, indicating the necessity of social justice views in reconsidering digital equity (Sadiq and Shahnawaz, 2024), (Assefa et al., 2025). Moreover, the rural setting of lower female literacy compounds the information gap since digital tools need a minimum of literacy to be utilized efficiently as a learning resource and accessing news (Usman, 2026).

Evaluation of Digital Inclusion Programs

A number of campaigns have been started to combat these inequalities, with some success:

- a. **PITP and Regional Programs:** In places such as Larkana, the digital inclusion plans will focus on delivering computers and internet connectivity to the people to close the gap between the public and the private (Abbasi & Hussain, 2024). Nonetheless, according to students,



these strategies cannot be always effective because of the infrastructural failures and power outages, mentioned above, in state institutions.

- b. **Laptop Distribution Schemes:** It is important to note that, although the provision of hardware is an essential step, students have observed that these devices may not be fully utilized or even become outdated due to lack of technical support and high-quality components (Irshad et al., 2022). In comparative research of the One Laptop per child program in Chile, it was found that laptops were commonly used to communicate or entertain instead of educating due to poor digital skills (Pavez & Farías, 2026).
- c. **Tele-School and Taaleem Ghar:** These programs were introduced with the aim of bringing equity in education through television broadcasts, and they were intended to cover 95% of the population (Taj et al., 2023). Even with this level of reach, even the most disadvantaged rural students did not have the extra technology and support needed to take advantage of the technological learning models to their fullest potential (Taj et al., 2023).
- d. **New and Open-source Technologies:** New strategies include AI-based digital literacy initiatives to enhance skills and access to devices in rural areas (Hassan et al., 2026). The recent suggestions include the utilization of open-source systems such as Moodle and H5P to make content offline, and geo-spatial technologies (GIS) to determine underperforming areas to deliver resources to out-of-school children (Mir et al., 2026).

Hence, the discussion on the concept of digital inclusion in rural Pakistan, specifically the student perceptions of the PITP program and comparable projects in Sindh provides an insight into the landscape of enduring inequality. Although the transition to digitalization promises the opportunities of further access, it already threatens the entrenchment of the existing disparities because of infrastructural failures and socioeconomic barriers. Rural students still experience greater stress and disruption of education than urban students. In order to realize educational equity, Pakistan should not just rest on mere devices distribution but rather adopt comprehensive mechanisms that will tackle the structural, economical, and sociocultural determinants of the digital divide. Digital education promises to be delivered to all students, irrespective of their geographical locations, but the promise can only be achieved through targeted, localized, and well-supported interventions.

METHODOLOGY

The paper was based on a constructivist philosophical paradigm, where the knowledge is constructed socially as people live their lives, which is why it was quite appropriate to examine how rural students at SZAB-Tech Larkana perceived digital inclusion and educational inequality. It is based on this that the research took an exploratory, qualitative design, which allowed themes to be developed through the organic process of the participants themselves through their narratives and not through the pre-set hypotheses, but by providing a rich, detailed understanding on their experience of having access to internet, technology and access to education opportunity. The sample population comprised of students of the rural District Larkana, directly impacted by the digital divide, and six students (three boys and three girls) enrolled in the PITP Program of SZAB-Tech Larkana were purposively recruited based on their first-hand experience with digital learning and technical education.

Semi-structured interviews with a uniform protocol on access to digital resources, use of technology in classrooms, issues facing rural areas, and opinions about digital inclusion policies were used to gather data. Each interview took 2530 minutes and was audio recorded with informed consent, and transcribed verbatim, the semi-structured format enabling



follow-up probing to explore new insights. Braun and Clarke six-phase thematic analysis process: familiarization, coding, generating themes, reviewing themes, defining themes, and writing up were used to analyze the data in order to identify patterns in digital inclusion strategies, access barriers and educational inequality in a thorough way. Ethical standards were observed throughout the study with informed consent, confidentiality with coded identities, secure data storage, and the right of participants to voluntarily withdraw at any time.

FINDINGS

Because of its methodical yet adaptable approach to finding and analysing patterns in qualitative data, thematic analysis was chosen as the main qualitative data analysis technique for this study. This method has helped to analyze the narratives of the participants in details and allowed the identification of the important themes in the data instead of imposing them externally. The thematic analysis allowed a comprehensive understanding of the participants experiences, perceptions, and points of view on the issue under study by organising and interpreting the data collected through the semi-structured interviews (Ahmed et al., 2025). Data familiarization, preliminary coding, topic development, and refining were all steps in the analytical process to guarantee coherence and analytical rigor. Thematic analysis was conducted to make the findings credible and transparent, to offer an appropriate way to address the research objectives and come up with insights into the literature.

Theme 01: Digital Availability and Access.

The fact that most participants relied primarily on mobile phones to access digital content was a major indication of significant limitations on digital access. Many students were unable to undertake complex technological activities due to a lack of personal laptops and/or desktop computers, and were not able to complete assignments successfully ("The Critical Role of Technology Support Programs during the COVID-19 Transition to E-Learning," 2022). Sometimes, the lack of internet in remote locations, which was very poor, sporadic and unpredictable, deprived them of access to online learning materials, virtual classes and digital platforms. Although there were facilities for Internet access in the institutions, it was felt that these were not sufficient, especially when used at high demand times. Such limitations are symptomatic of structural inequalities since the level of access digital resources present to rural students outweighs the access that is provided to urban students. Students' learning and participation is significantly limited when they lack regular devices and internet access, deepening educational inequalities in rural areas.

Theme 02: Digital Skills and ICT Training

Students were able to locate information on the internet, access information and tutorials, but not so comfortable with more complex programs and technical sites. It was asserted that the influence of the ICT training delivered in the institutions on the digital competence of the students was minimal due to its brevity, theory, and unrealism ("The Formation of Digital Competence by Means of Information and Communication Technologies among Students of Higher Education, 2023). The absence of ICT activities, which are organised and practical, led to low confidence and decreased engagement of students in the efficient use of digital technologies. This is where the necessity to offer practical courses of skill development is with the opportunity of constant access to the corresponding software and applications in the area. Enhancing the digital skills of students is crucial to enhancing their



learning outcomes and empowering students to fully participate in today's technical education.

Theme 03: The Role of Digital Technology in Learning.

Pupils' access to and competency with digital technology enhanced their learning. Self-directed learning and conceptual understanding were encouraged by using Video Tutorials, Simulations, and visual examples. Leveraging online tools provided students with a chance to learn about the concept of technology independently and acquire critical thinking and problem solving (Tanty et al., 2022). The classroom learning was also supplemented by online resources, which exposed the students to a variety of learning resources and knowledge networks in the global arena. Although digital technology has massive potential to enhance learning, its success will depend on the dependability of access to technology, the capability of the devices, and the facilitation of the right support systems, hence the interaction between infrastructure, skills, and support systems.

Theme 04: Learning Challenges and Motivation

Technical problems, lack of devices, poor connectivity and lack of institutional support were some of the factors which were found to have adverse effects on students' learning outcomes (Abdullah & Kauser, 2022). The participants noted that motivation had fallen and they had difficulties with submitting assignments since the problems continued to exist. These challenges lowered self-efficacy and resulted in a vicious circle of frustration in which they discouraged active involvement and hindered autonomous investigation of digital technologies. Digital barriers do not only influence practical learning, but the motivation of students, their confidence, and their general involvement in technical education as mentioned in the results (DEMİR KAYMAK & Horzum, 2022). Both technical advancements and focused tactics to encourage students' academic perseverance are needed to address these issues.

Theme 05: Digital Inequality in the Rural-Urban areas.

The respondents mentioned that there were major differences between the students in rural and urban areas with regard to digital exposure and access. Compared to students in rural areas, students in urban areas had access to more high-speed internet, cutting-edge technology, and encouraging learning environments (Khan et al., 2023). This digital divide between rural and urban areas affects all the disparities in regards to digital literacy, educational achievement and professional life. A geographical location is still a significant determinant of the creation of digital inclusion, and specific measures need to be taken to close this gap and provide equal access to education.

Theme 06: Socioeconomic and Cultural Barriers

Money was one of the major factors which made students unable to purchase gadgets or maintain an internet connection. Moreover, cultural beliefs and family responsibilities had an influence on digital learning activities especially among female learners (Mathrani et al., 2023). The access was also limited by the household responsibilities and limited mobility of people, which further underscores the interconnections between digital inequality and social economic and cultural factors in general. The technology advances have to be addressed with inclusive learning opportunities that would facilitate successful interventions.

Theme 07: Institutional Digital Support

Although SZAB-Tech offers rudimentary digital services such as computer laboratories and Internet, the participants reported that the services are insufficient, outdated and can be accessed only at certain times. Poor technical support and guidance was also cited. The



restrictions on the access of students in these spheres to the institutional resources made it clear that more favorable support services, more access hours, and modern infrastructure are necessary to allow students to fully benefit digital learning opportunities (Lorente & Pulido, 2022). Although there are some institutional initiatives in place, they should be strengthened and expanded to meet the growing digital needs of rural students.

Theme 08: Strategies for Improving Digital Inclusion

The participants provided some ideas regarding what can be done to promote digital inclusion. These included the raising of the number of hours in the laboratories, the installation of current computer laboratories and equipments as well as provision of software that was required by the students and free access to the internet to make such use of it. It was stressed that ICT activities should be a part of the curriculum, and to achieve the competence and confidence in using digital resources (Forutanian, 2021). Moreover, low-cost devices, low-cost internet deals, and cross-institutional and governmental cooperation were also proposed as other steps to address systemic digital inequalities. An equal access to digital education requires a multi-level response that includes legislative support, development of infrastructure, and practical training.

Theme 09: Future Career Prospects and Digital Technology.

The participants identified digital competency as key to advancing in their careers and to their employability. Being skilled in digital was deemed essential to acquire online certifications, be a freelancer, or the industry (Las, 2022). In addition, digital literacy was considered to be a pathway for social mobility, especially for rural students, who were also seen as having the opportunity to enter into new employment opportunities and markets through digital competence. The results highlight the need to increase digital literacy to enable children to succeed in school and live in a more technological-oriented economy.

CONCLUSION

This exploratory research project sought to research into the digital inclusion strategies and implications of this issue in solving educational inequities in the Pakistan Institute of Technical Program (PITP) Larkana in the wider context of the rural setting in Pakistan. The results indicate that digital technologies have high potential for enhancing students' profession preparedness, involving students in learning and teaching, and enhancing conceptual understanding (shah, 2023). Availability of digital tools and technology facilitated learning conditions was discovered to influence positively on the development of skills, exposure to modern technical practices and congruency with changing labour market requirements.

However, the study also underlines that such potential is not fully fulfilled as there are still obstacles to the access to digital technologies, infrastructure issues, and the lack of skills. Low Internet connectivity, insufficient digital devices and also the lack of technological resources in the institution (Mariño & Marín, 2023) are still obstacles to the effective integration of technology in rural technical education. The digital divide of technical students in rural areas is exacerbated by socio-economic disadvantages like budget constraints, educational barriers and regional inequalities.

The findings demonstrate the necessity of a comprehensive and holistic approach that can be used to mitigate the educational disparity by digitally including people. There should also be institutional changes to systematically integrate digital technology into technical courses and teaching methods (Thelma et al., 2024). In addition, it is essential to offer both formal and practical training in digital skills, so that students can be able to employ technology in



the most effective way to meet their learning and career objectives (Preparing Students for a Digitized Future, 2023). In order to create and maintain digital learning initiatives, the establishment of infrastructure development by means of frequent investments in digital laboratories, internet connectivity and technical support structures is essential.

At the policy level, some action is needed to enable equitable access to digital facilities by the technical students in the rural areas (Omar et al., 2023). They comprise government-supported funding and sources, public-private collaborations, and digital education policies specific to the region that focus on disadvantaged institutions (Anjanappa, 2025). In addition, using culturally responsive methods to address the needs of learners, as well as their communities, can promote the adoption of digital technology and its positive impact in rural areas (Omar et al., 2023).

In conclusion, further improvement of the strategy of digital inclusion is essential to minimize the disparities in education and promote inclusive development in the field of technical education in the country (Ali et al., 2024). Through collaboration, policymakers and teachers can empower PITP students at SZAB-Tech Larkana to make a significant contribution to national development in a rapidly digitalizing economy by tackling institutional, technological and socioeconomic obstacles.

RECOMMENDATIONS

According to the results of this research, a number of recommendations can be made that are necessary to promote digital inclusion in rural technical education. First, enhancing rural internet connectivity will entail a true multi-stakeholder effort, which will unite government agencies, telecommunication companies, and learning institutions to bridge the longstanding connectivity divide. In conjunction with this, subsidizing digital devices to rural learners would help eliminate one of the most direct obstacles to participation, so that the ability to afford the devices would not undermine the ability of learners to utilize them. As part of the PITP program as such, there is an evident requirement to instil practical and industry-focused ICT training, in such a way that students do not only receive theoretical knowledge, but tangible skills that directly translate into workplace preparedness. Such a shift, however, will be relying heavily on increasing faculty capacity in digital teaching, providing instructors with the confidence and competence to effectively provide technology driven instruction.

It is also critical to introduce digital mentoring programs that will enhance student engagement, providing the learner with continuous guidance and support when mastering new digital tools and platforms. These initiatives must be supported with policies on rural-based digital inclusion that specially consider the special needs of remote communities, and do not use generic, one-size-fits-all solutions. Simultaneously, higher education should embrace gender sensitive and adaptable digital learning strategies, acknowledging that digital access and comfort might differ among student bodies and situations. Modernizing institutional digital infrastructure and support systems is a cornerstone exercise, which makes sure that campuses as such are capable of supporting contemporary digital learning environments. Lastly, training in digital skills must be strategically oriented towards employability and freelancing, assisting students to apply their skills to economic outcomes, and all of this must be delivered through sustainable and multi-level digital inclusion strategies that can generate long-term, long-term impact.



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