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Policy Brief

Assessing the Effectiveness of IT Skills Development Programs in Promoting Digital Skills among Youth in Balochistan

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INTRODUCTION

We live in a digital age where nearly every aspect of life is influenced by technology. Pakistan, despite lagging behind the developed world, is rapidly transforming. Its urban centres are increasingly integrated into the digital economy and information landscape. However, digital literacy in Balochistan is significantly lower than in other regions of the country. Due to its limited corporate sector, Balochistan is less integrated into the national digital sphere than Punjab and Sindh. Despite lagging in the information technology (IT) sector, Balochistan has the potential to leverage its available human resources for the country's socio-economic development. Thus, it is essential to assess what the federal and provincial governments are doing to help bring Balochistan up to par with developed areas of the country.

The purpose of this study is to explore and examine the effectiveness and implementation of IT skills programs, such as the National Vocational and Technical Training Commission (NAVTTC) Program, DigiSkills, and DigiBizz, designed for youth in Balochistan. These programs are implemented at various public sector universities across Balochistan. NAVTTC is run under the Prime Minister's Youth Program to equip young people with market-driven and high-tech skills. DigiSkills, run by the Federal Ministry of Information Technology and Telecommunication, offers free online freelancing courses. DigiBizz is sponsored by the Government of Balochistan and focuses on information and communication technology (ICT), freelancing, and e-business training.

The main objectives of the IT skills initiatives are to enhance public service efficiency by equipping youth with market and industry-relevant digital skills. The programs also aim to increase youth employability, digital literacy, and entrepreneurial capabilities. Although studies have revealed that the quality of public services has improved due to digital government initiatives, the multitude of factors restricts their impact. The Government of Balochistan initiated many ICT projects, but failed to deliver outcomes due to a lack of IT-trained human resources and infrastructure. Thus, this research assesses the effectiveness and implementation of IT Skills initiatives in Balochistan. In addition, the study aims to explore the role of these initiatives in promoting digital skills, job creation, and entrepreneurship among youth. The study also aims to identify the challenges that hinder the desired outcomes. In sum, this study aims to answer the following two research questions:

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RQ1: What is the current implementation status of the IT skills development programs (DigiBizz, NAVTTC, and DigiSkills) in terms of their planned physical, human, financial, and technical resources?

RQ2: To what extent have these IT skills programs improved participants' digital literacy, perceived employability, and potential to engage in freelancing?

RESEARCH METHODOLOGY

To evaluate the implementation and effectiveness of IT skills programs, this study employed a mixed-methods approach with a quasi-experimental design. To assess medium-term outcomes (e.g., employment status, freelancing, digital platform usage, and entrepreneurial activities), participants in the training programs were compared with non-participants who shared similar demographic characteristics. The study population consisted of current and former participants of IT initiatives. The quantitative sample size (n=267) was determined using G*Power with a medium effect size (0.5), power of 0.80, and alpha of 0.05. The qualitative sample size was guided by data saturation. Stratified sampling was used to ensure proportional representation across three IT Skills programs and seven HEIs. We used surveys, semi-structured interviews (SSI), and focus group discussions (FGD) for data collection from participants, instructors, trainers, program heads, and focal persons. Scales established in the literature were adapted to measure variables such as youth-perceived employability. Face and content validity, and expert review were sought to ensure clarity, reliability, and accuracy of all adapted and developed instruments.

NVivo was used for qualitative data analysis, while quantitative data was analysed using IBM SPSS and SmartPLS 4.1.1.4. A six-phase framework was used to conduct thematic analysis of qualitative data collected from 55 respondents. Two stage approach was used for quantitative data analysis. This approach enables data triangulation and strengthens the reliability of the findings.

FINDINGS AND DISCUSSION

The findings of the study indicated that poor computer labs and internet, as well as unconducive classrooms and learning environments, significantly affected students' ability to participate in the training. In addition, both physical and online training sessions were severely affected by frequent power outages, particularly in remote areas. The study also highlighted that trainer absenteeism, outdated curriculum, delayed stipend payments, transportation, and extreme weather negatively affected IT skills programs. In addition, lack of emerging fields such as AI, web development, video editing, YouTube automation, and digital marketing in curriculum reduced the credibility of the programs. Besides, the time and duration of the programs, along with their scheduling conflicts with regular university classes, created additional barriers to participation. These factors collectively contributed to high dropout rates and relatively low completion levels. Furthermore, weak monitoring mechanisms and concerns about the accuracy of reported freelancing outcomes highlighted the need for stronger accountability.

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The findings revealed that interactive teaching methods, live practical sessions, and freelancing demonstrations improved participants' engagement. The findings also revealed that extended course duration, better timing, and access to paid tools will improve skills. Some students were not able to create freelancing profiles despite completing the training. Thus, post-training guidance and support are required after program completion. The findings also revealed large differences across institutions in terms of infrastructure, technical resources, mentors and trainers, and teaching methods. For instance, universities in Quetta were able to offer face-to-face learning, while universities in rural areas were deprived of it. These differences had created a significant difference in the participants' employability. The trainees from University of Balochistan (UoB) and Balochistan University of Information Technology, Engineering, and Management Sciences (BUITEMS) had better job and freelancing opportunities than universities located away from the provincial capital.

The findings also revealed that these programs helped them develop valuable digital competencies and practical skills required in the modern digital world. The presence of qualified trainers and practical teaching approaches enhanced their learning experience. The study revealed a high level of motivation and interest among students in acquiring digital skills. Some respondents had already started successful freelancing work, had obtained international clients, and earned online income. Moreover, digital work created work-from-home opportunities for female participants who face mobility constraints in certain regions. Overall, respondents' perceptions of the IT skills training were positive.

POLICY IMPLICATIONS

IT skills programs have played a significant role in enhancing employability and digital literacy among youth. As Pakistan's economy is shifting toward digital platforms and freelancing, demand for such skill programs is expected to rise. Therefore, it is vital to address infrastructural and logistical barriers, and design a proper plan to maximise the impact of IT skills initiatives. The key policy implications from our study are as follows:

1. To maximise the effectiveness of IT skills programs such as DigiBizz, NVTTC, and DigiSkills, the curriculum needs to be upgraded. The curriculum should focus on emerging IT domains such as YouTube automation, digital content creation, AI, machine learning, data analytics, cybersecurity, and cloud computing.
2. The curriculum must be designed in consultation with industry, members from the chamber of commerce and academia, government officials, international institutions, and IT experts, to better align it with local and regional industry demands.
3. Students should be given the opportunity to work on real IT projects with industry experts and academic mentors. This approach will build technical skills and professional competencies (e.g., communication skills, problem solving skills etc.) among students.
4. Universities in rural areas lacked access to face-to-face learning. The Government

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Balochistan should prioritise face-to-face instruction over online learning. Such approach will address connectivity issues.

5. IT skills programs should be scheduled during vacations. Such a practice will avoid the conflicts of IT skills training with students' regular academic courses. Digital skills courses should be integrated into every BS program and made it mandatory.
6. The training duration should be extended beyond one or two months. This will allow students with limited prior digital knowledge to acquire higher-order IT knowledge.
7. A digital platform or hub may be developed in the country. It will help IT students and freelancers to connect with clients easily, finding initial projects with ease. This IT hub will also help in settling the issue of Bank account opening and international payment.
8. Investment in physical, human, financial, technical resources, digital infrastructure and teacher development is mandatory for any IT project. Additionally, competitive compensation, especially incentives for trainers in remote areas, is urgently required.
9. Regular consultation with industry partners and expert and analysis of job market demands are essential in maintaining the relevance of the IT skills curriculum.
10. Policymakers should regularly evaluate the effectiveness of existing programs (e.g., DigiBizz, NAVTTC, DigiSkills). Programs shown to be effective, such as DigiBizz, should be scaled up and used as benchmarks for redesigning less effective programs.
11. A work and study program with a reasonable honorarium should be introduced in universities. This approach will enable students to participate in IT skills programs without financial burden.
12. The Government of Balochistan should provide software and subscriptions to online platform for free to all students enrolled in these programs. This will address the issue of account opening charges.
13. Policies should prioritise equitable resource allocation to remote and marginalised regions where computer labs, infrastructure, and equipment are in poor condition.
14. The federal government should collaborate with and delegate program management of federally sponsored IT initiatives to the government.
15. Clear coordination between focal persons and project management teams is also necessary to avoid administrative delays.
16. Strong monitoring and evaluation systems, and regular feedback from host institutions, are also needed to assess resources and program delivery across institutions.
17. Finally, the Government of Balochistan's IT Department should establish a 24/7 online support service to assist freelancers with their queries and work.