



Impact of Digital Skills and Competency among Graduates of Social Sciences in the Context of Employability: Evidence from District Central Karachi

Bushra¹ & Dr. Muhammad Yousuf Sharjeel²

¹M.Phil Education Scholar, Faculty of Liberal Arts and Human Sciences, College of Education, Ziauddin University

²Professor, Director Postgraduate Studies and Research, Faculty of Liberal Arts and Human Sciences, College of Education, Ziauddin University, Email: muhammad.sharjeel@zu.edu.pk

ARTICLE INFO

Article History:

Received: January 22, 2026
Revised: February 27, 2026
Accepted: March 05, 2026
Available Online: March 12, 2026

Keywords:

Digital Skills, Employability, Social Science Graduates, Labor Market Competitiveness, Digital Competencies, Career Readiness, District Central Karachi

Corresponding Author:

Dr. Muhammad Yousuf Sharjeel

Email:

muhammad.sharjeel@zu.edu.pk

ABSTRACT

The study was based on the correlation between the Digital Skill of Social Science graduates with employability opportunity in District Central Karachi. Digital competence is a key factor in employment readiness, workplace adaptability and competitiveness in the modern employment market. Students who have completed their education in social sciences face difficulties in meeting the technology demands of today's employers because they did not have adequate formal training in digital skill development. This study adopted a quantitative cross sectional research design in order to investigate this issue. A structured questionnaire was used to gather data from 126 social science graduates, which included demographic data, digital skills assessment, and employability-related measures. Collected data were analyzed using the SPSS using descriptive statistics, reliability analysis, Pearson correlation, simple linear regression and independent samples t-test. The reliability testing results indicated that the research instruments had a high internal consistency as evidenced by the value of Cronbach's Alpha for digital skills was 0.942 and for employability was 0.730. The results showed that there was a significant and positive correlation ($r = 0.731, p < 0.001$) between digital skills and employability. The digital skills also significantly predicted employability, accounting for 53.5% of the variance in employability outcomes ($R^2 = 0.535, p < 0.001$), according to the regression analysis. The study concludes that digital competencies have a significant impact on employability of social science graduates and there is a need to introduce digital skills in non-technical academic courses to improve the employability and competitiveness of the graduates in the changing labor market.



Introduction

Background of the Study

The global economy digitalization has rapidly transformed the nature of work and the competencies that are needed by modern professionals (Tyagi, 2024). In the modern labor market, employers are more willing to hire graduates with not just the disciplinary knowledge, but also with a high level of digital skills to maneuver in the changing technological environment. Digital competence is being adopted as a fundamental graduate competence in employability frameworks all over the world (Nyale et al., 2025). A study conducted by the World Economic Forum reveals that problem-solving digitally, being adaptable and technologically fluent are no longer elective workforce competencies but are becoming core ones. Within the framework of developing countries, lower-middle-income countries have less than 15 percent of the population with intermediate digital skills, which results in severe obstacles to inclusive development, the adoption of technology, and economic convergence across regions (Lechman and Popowska, 2022). Moreover, it is projected that in the upcoming ten years, nine out of ten jobs in the world will demand basic to professional digital capabilities that will radically transform the economy and the avenue to decent jobs.

In Pakistan, the macroeconomic environment is very difficult to the new university graduates venturing into this market that is undergoing digitalization. The present levels of unemployment among the educated young people are above 30 which means that there is a serious imbalance between the higher education achievement and the labor market needs (Hassan, 2025). A recent report by the Pakistan Institute of Development Economics (PIDE) depicts how more than 31 percent of the educated young population in Pakistan remains unemployed, with 51 percent of this unemployed population being women (Gulzar et al., 2024). Although the general level of unemployment in Pakistan has varied, the rate of graduate unemployment has been increasing with time, which highlights the systemic inefficiencies in terms of absorbing highly skilled human resource in the job market. It is not just a matter of job shortage, but rather it is deeply ingrained in the reality of a very large digital skills gap; it has been estimated that 90.4% of Pakistani youth do not have the most basic computer skills necessary to work at the modern job market (Parvez, 2025).

The graduates of social sciences, who were historically equipped with the ability to think theoretically, analytically, and critically, are now burdened with other requirements that are associated with data analysis, digital communication, content production, and solving problems through technology (Jabeen, 2024). Although social science programs do cultivate the necessary soft skills, including interpersonal communication, adaptability, and cultural awareness, they do not typically include structured training in digital skills, including statistical software use, digital tools of research or online professional branding. With the digitalization of the workplace becoming very heavy, these classic disciplines are in danger of falling way behind the technical courses of study such as engineering and IT, which naturally incorporate technology into their coursework. Governmental policies, like the National Skills Strategy (NSS), are actively encouraging the adoption of digital training, but the question of its integration into university programs is extremely uneven across the board (Ali et al., 2024). Higher Education Commission (HEC) has already launched the digital learning programs to streamline educational processes; however, bureaucratic obstacles, old pedagogical customs, and lack of sufficient resources still hamper the successful implementation of the same (Ashraf et al., 2025).

Moreover, rural-urban inequalities, sex differences, and insufficient industry-academia partnership are highly exacerbating the integration issue. The city of Karachi, which is the main economic center in Pakistan, also offers a very competitive and fast-paced job market in which these inequalities can be clearly observed (Ghafoor et al., 2025). Thus, the necessity to scrutinize the impact of digital skills on the employability among recent social science graduates in Karachi has a high and acute priority (Riaz et al., 2025). The role of digital skills in employability is in no way a simple matter to comprehend since these skills directly facilitate adaptability, productivity, and career mobility in all economic industries. The research objective is to explore the specific impact of digital competencies on job search and career advancement in employment in the competitive job market of the District Central Karachi, in an attempt to fill the long-standing gap between academic training and professional standards.

Statement of the Problem

Although higher education degrees have been successful, most of the social science graduates in Karachi have been struggling and experiencing serious challenges in getting relevant and stable jobs. The incessant increasing digitalization of the contemporary workplaces is associated with dynamic competencies by default that include data analysis, digital communication, online collaboration, and problem-solving that relies on technology use. Nevertheless, in the social sciences, university programs tend to be poorly digitalized and poorly integrated with industry, and students fail to prepare them with the true technological reality of the modern labor force. Employers also often express their deep dissatisfaction with the technological preparedness of graduates directly causing the high level of underemployment or a critical lack of professional skills (Yahui and Dagogo, 2025). An example is the recent industry feedback that indicates that almost 72% of employers directly state that they are dissatisfied with the work-readiness of graduates, often citing blatant lack of practical experience and digital literacy.

Skill mismatch between graduate skills and skills demanded by the employers is a structural issue of graduate employability in Pakistan. Academic institutions tend to produce graduates with solid theoretical understanding, but with a devastating lack of exposure to the digital systems being actively applied in the work environment, including collaborative tools, customer relationship management (CRM) software, and AI-based operation tools (Nyale et al., 2025). This shortage is especially acute in the case of the humanities and social science graduates, who encounter much more challenges on their way to the relevant employment than their counterparts in the engineering and business-related fields. This gap is intensified to the point of crippling the capacity of social science graduates to successfully navigate the modern job market through the continued academic focus on theoretical knowledge over practical application (Moloto et al., 2025).

Also, there are structural obstacles, including the lack of technology, socioeconomic factors, and deeply rooted gender inequality, which further limit the access of digital skills equitably. In Pakistan, the rate of unemployment is almost 3.8 times among female graduates compared to male graduates, which is undoubtedly a clear sign that social norms and severe digital gaps only hit women when they enter the labor market. Although several governmental and non-governmental efforts are made to enhance digital literacy in the country, there is a clear lack of empirical studies that are specifically investigating the direct effect of digital literacy on employability among social science graduates in Karachi. The majority of available literature is either very general in its approach to the IT industry or it addresses employability as a general concept without breaking down the specifics of digital competence in non-STEM fields. Thus, this paper carefully aims at exploring the question of whether digital competence has a major effect on job prospects and

identifying the most significant educational gaps that are in dire need of being closed in higher education institutions.

Research Question

This study is informed by some specific questions to explore the dynamics of the digital skills gap and its consequent effects on the incorporation of non-STEM graduates in the labor market in a systematic manner. The main task is to unravel the enigmatic relationship between technological expertise and professional achievement. In particular, the study officially answers the following main questions:

- What is the level of digital skills among social science graduates in District Central Karachi?
- What is the employability status of social science graduates in District Central Karachi?
- Is there a significant relationship between digital skills and employability?
- Do digital skills significantly predict employment status among graduates?

Research Objective

The general purpose of this study is to critically assess the critical importance of digital competence in defining professional performance of people who are trained in traditionally non-technical fields. In order to gain the detailed, practical comprehension of this phenomenon, the research sets out the following specific research objectives:

- To assess the level of digital skills among social science graduates.
- To determine employability status of social science graduates.
- To examine relationship between digital skills and employability.
- To analyze predictive effect of digital skills on employment.

Justification of the Study

The present research is strictly supported by the fact that the higher education outcome and job market requirements mismatch has been growing and documented in Pakistan. With the world and local industries quickly embracing advanced digital technologies, graduates who are launched into the job market without background and advanced digital skills have dire, compound disadvantages in job recruitment, retention, and career advancement. As the main economic and commercial center of Pakistan, Karachi offers a competitive job market that is especially unique, with digital literacy having a particularly important role in the process of defining long-term employability. To navigate this contemporary business landscape, the skill set has to be dynamic to bridge the gap between the conventional academic knowledge and practical application of technology.

The available academic literature in the area is mainly overloaded with graduates of STEM (Science, Technology, Engineering, and Mathematics) fields, with the most disastrous lack of empirical focus on the issue of social science graduates. The work has played a critical role in addressing that critical scholarly void by offering localized, empirical data on the crucial role of digital skills in exponentially boosting the employability of non-technical graduates. The smooth combination of soft skills, which are inherent to the social sciences, and hard digital ones are known as the best option that will shape the future of the work process in the world, but the mechanisms of their integration in Pakistan are not well studied.

Moreover, the results of this study will give very practical information to contribute to the immediate reform of the curriculum at the institutions of higher learning. It will promote systematic industry-academia partnership to make sure that the university curriculum is precisely

aligned with the real, daily requirements of the contemporary employers. The study will equally critically inform the policy makers and educational planners on how to design effective skill development strategies that are carefully designed to fit the non-STEM students. The strong quantitative approach will ensure that the study will not only present the solid statistical data but also give a profound understanding of the context and, therefore, greatly enhance its practical value and scholarly appeal.

Scope of the Study

The scope of the given research is accurately outlined to provide a narrow, manageable, and very relevant empirical study of the intersection of technology and employment. The geographical area of the research is strictly limited to the District Central Karachi, which is a high intensity and active urban population involved in both commercial and organizational activities in the city. At the institutional level, the study will include social science graduates of at least three well-known and reputable universities based or serving in this particular district.

Thematically, the research aims at quantifying particular, measurable variables: the independent is Digital Skills (data literacy, digital communication, content creation and technology-based problem-solving) and the dependent one is Employability (formal employment status, relevance of job to degree, and career progression indicators). The study is specifically aimed at the recent graduates that have already entered the labor market with their degrees in such studies as Sociology, Education, Psychology, Political Science, Law or Economics. The study methodologically chooses the quantitative and cross-sectional survey design in order to examine the present-day realities of the workforce at this specific time.

Delimitation of the Study

Although the research is broad in its purpose to offer practical knowledge, a number of limitations have been put in place strategically to ensure that it is strictly viable and focused on the research. To begin with, the research is intentionally constrained to the social science graduates who only live or work in District Central Karachi; hence, the results might inherently be confined to generalization to other geographical locations, rural communities or dramatically different academic fields across Pakistan. The distinctive, rapid economic environment of Karachi might not be a true representation of the labor market dynamics of other smaller cities or agrarian oriented provinces.

Secondly, the formal data collection will be mainly based on self-reported data collected using digital questionnaires with the help of structured questionnaires. This research design will inevitably lead to the possibility of response bias, in which the participants will accidentally exaggerate their digital skills or subjectively tell the truth about their precise employment status. Lastly, the operational definition of digital skills in this paper will place a heavy emphasis on basic and intermediate professional skills; it will specifically avoid highly technical, professional competencies that are inherent to other professions like software engineering or IT architecture since they are naturally way beyond the normal expectations of social science professions.

Significance of the Study

The core importance of the research is multi-dimensional with the considerable contribution, both in academic, practical and policy-making processes on a long-term basis. It is academic because it adds a considerable depth to the already existing literature regarding graduate employability and digital competence, all in the context of a developing nation undergoing a fast but historically unequal transition to technology. The study explicitly targets social science graduates and thus

diversifies the academic discourse of digital literacy by the conventional STEM-centric perspective, offering a long-overdue refined insight into the smooth integration of technology with the humanities and social sciences.

In practice, the study offers short-term, practical implications to universities and higher learning institutions that are based in Karachi. The results will indicate the need to prioritize immediately, without any doubt, the nature of the inclusion of organized digital skills training and direct, practical technological use into the introductory social science programs. To the local employers and human resource practitioners, the study will explicitly point to the specific key competencies needed in the contemporary recruitment process, allowing organizations to be able to see the capability gaps in the labor market and develop much more effective workforce growth and employee onboarding programs.

Considering these strict evidence-based results in terms of macroeconomic policy, government officials and educational policymakers can use them to structuralize the youth employment programs and national initiatives of digital literacy. It is also a direct and massive empowerment instrument to the students of the university and the new graduates as the study clearly explains the central digital skills required to achieve a long-term successful career and professional sustainability in the 21st century. The research is very strong in terms of informing more inclusive policy changes to fully democratize technology by critically addressing the underlying socio-economic conditions, including gender restrictions and urban-rural differences in the access to digital technology. Finally, the study is a furious advocate of sustainable employee growth that is closely correlated with worldwide trends of digital transformation.

Theoretical Framework

The theoretical framework supports the research as it is based on the earlier paradigms in the area of labor economics, investing in education, and integrating technology. The two main theoretical frameworks that inform this study to conduct a comprehensive investigation of the digital skills gap are the Human Capital Theory and the theory of Skill-Biased Technological Change (SBTC).

Human Capital Theory (HCT)

Created by economists like Gary Becker and Theodore Schultz in the 1960s, the Human Capital Theory assumes that education, training and acquisition of skills are direct economic investments yielding measurable returns, which are increased wage rates, improved employment rates, and general success in a career. HC, according to HCT is the cumulative knowledge, habits, social qualities and creativity of an individual.

Implications to the Study: In the classical model, a university degree in the social sciences was seen as an adequate human capital to be employed in the white-collar job. In the 21st century, however, the meaning of what is regarded as valuable human capital has changed radically. The theoretical basis of this study lies in the idea that theoretical knowledge is no longer enough, and nowadays digital competency is a high-value and necessary element of human capital. Graduates that do not learn these particular digital skills have a gap in their human capital and thus they are literally diminishing their perceived market value and general employability in competitive urban centers such as Karachi.

Skill-Biased Technological Change (SBTC) Theory

Skill-Biased Technological Change is a theory that gives a macroeconomic explanation of the change in labor market needs. SBTC maintains that not all workers are affected by technological

advancement, especially the introduction of computing, automation, and digital communication. Rather, it naturally leans toward (or is biased toward) the skilled workers that are able to utilize and take advantage of these technologies, and, at the same time, lowers the number of workers that are unable to use technology.

Implication to the Study: Industry and the accelerated digitalization of Pakistani workplaces is a textbook case of SBTC. The contemporary workforce is unfairly rewarding those who are able to apply data analytics, online project management and virtual working tools. SBTC poses a great structural threat to social science graduates because, historically, their academic education has focused on non-technical, conceptual models. This theory explains why the study is interested in quantifying the cause and effect of the lack of digital skills that generates an educational mismatch that exposes otherwise well-educated graduates to unemployment or underemployment.

The European Digital Competence Framework (Dig Comp)

In order to base the measurement of the concept of digital skills on the current educational theory, this paper implicitly relies on such frameworks as Dig Comp. Dig Comp classifies digital competence as not just the mechanical use of software, but as a set of skills in the form of a whole, implying information literacy, communication, creating digital content, being safe and problem-solving. This theoretical knowledge justifies the multi-dimensional design of the research questionnaire, taking the study to the next level of professional digital aptitude other than mere computer literacy.

Literature Review

The accelerated digitization of the economy of the entire world has changed the very essence of work and the competencies that a modern professional needs considerably (Patel, 2023). Within the last two decades, growth in information and communication technologies (ICTs) has transformed the way industry is practiced, governed, and individuals behave within the organizations and thus redefined the concept of being a competent member of the labor market. In modern labor market, employers are more demanding graduates who not only have profound disciplinary knowledge, but are also well-digitalized. This international paradigm has put enormous pressure on universities and colleges to close the divide between the academic programs and the technological shifts and demands of the contemporary workplaces (Rehman, 2025).

As a result, the use of digital competence is steadily emerging as an essential graduate competence in employability frameworks worldwide. Nevertheless, this shift is not universal in all academic fields and in all parts of the world. The graduates of social science are traditionally trained in the theoretical, analytical, and critical thinking skills, but now they have to meet new and unheard expectations regarding data analysis, digital communication, content creation, and the possibility of solving problems with the help of technologies (Kovari, January-2025). In the developing countries like Pakistan, these problems are enhanced by structural problems. Pakistan and more so in Karachi, the problem of unemployment among educated youths is a burning challenge, as it is an indication of a very deep lack of alignment between the labor market requirements and the university curricula. Thus, it is necessary to comprehend the effects of digital skills on employability among the recent social science graduates (Riaz et al., 2025). This overall literature review is a synthesis of the existing theoretical frameworks and empirical studies on graduate employability, digital skills, the particular issues of social science disciplines, and the peculiarities of the socio-economic realities of the Pakistani labor market.

Graduate employability has changed a lot since it was a basic statistic (finding a job at an entry level right after graduation) to a multi-dimensional phenomenon (Mohammad, 2025). The human capital theory used to propose that the simple holding of higher education qualifications would automatically translate into labor market success (Memon and Liu, 2019). The current economic conditions have however made this linear perception outdated. The Employability can now be defined as the ability of an individual to acquire, retain and advance in any meaningful employment. It involves a dynamic range of accomplishments, capabilities, perceptions, and personal qualities that increase the likelihood of graduates to secure jobs and be productive in their occupations of choice and this is beneficial to them, the labor force, the society, and the economy.

The current employability models demand a fine balance between generic (soft) and technical (hard) skills (Iqbal et al., 2023) discussed the generic skills needed to the employability and professional wellbeing of Pakistani millennials, and it is important to note that the authors consider the employer perspective. Their results reveal that domain-specific knowledge is still significant, but adaptability, problem-solving, and communication are valued by employers to a large extent. Pazur Anicic, Gusic Mundar, and Simic (2023) also examined the overlap of generic and digital competences to employability by conducting a survey of national graduates in Croatia, and found that the combination of two sets of skills is the most significant factor in perceived employability. The professional of the modern era is supposed to employ digital technologies not only in performing their duties, but as the platform of applying their generic abilities e.g. collaborative software to collaborate in teams or data analytics to engage in critical thinking.

Employers are also complaining more of the perceived poor performance of higher learning output. Even after graduation with higher education degrees, a number of the new graduates have experienced challenges in finding steady and applicable jobs as the employers' report dissatisfaction with the technological preparedness of graduates. The result here is either underemployment or extreme skills mismatch. The article (Rahmat et al., 2022) emphasizes the need to combine socio-digital skills with graduates in the industry world according to the employers, human-centered skills need to be enriched with digital fluency. The failure of universities to offer organized development in these areas will compel organizations to spend a lot of money on remedial onboarding, thus reducing the likelihood of employing graduates who need a lot of baseline training.

In order to critically assess the effect of technological proficiency on employment, there is a need to define the variables in a clear operational way. Digital skills are described as becoming good at using digital technologies, tools, and platforms in communication, analysis, and problem-solving (Zervas et al., 2024). This definition intentionally extends beyond the simple computer literacy, e.g. basic word-processing or maneuvering around an operating system, to include a wider range of active, purposeful uses of technology (Getu et al., 2024). In this regard, competency refers to the skill to use these digital tools in diverse, unforeseeable situations at the workplace (Acharya et al., 2025).

There are three progressive levels of digital competency, which may be generally divided (Martinez-Bravo et al., 2022). Basic digital skills entail basic operational skills, including web navigation and email communication. The intermediate level of digital skills, which is becoming the minimum qualification to work in white-collar positions, entails data management, creation of digital content, and the use of simple statistical or collaborative programs (Bobek et al., 2025). Advanced digital skills are highly technical skills, including the development of code, network architecture, or advanced machine learning algorithms. In the case of social science graduates, they are nearly all focused on the intermediate level, which enables them to apply the theory they have

acquired to digital products. According to (Mishchuk et al., 2025), the digital competencies of graduates in universities directly affect the overall success of their career (Musa et al., 2025).

Digital competency is not about learning how to use certain software, and the key aspect of it is the ability to think digitally in a flexible way (Imjai et al., 2025). According to research conducted by the World Economic Forum, the skills of digital problem-solving, adaptability, and technological fluency are key workforce skills (Surono, 2025). Due to the rapid change of software and technological platforms in levels unparalleled before, the existing knowledge of a graduate will be obsolete sooner or later. Thus, being a digitally competent person means the ability to master new systems quickly, independently troubleshoot problems with technology, and being able to discern the rationale behind digital tools (Adedoyi, 2025). Recent researches indicate that these interactive digital skills are beneficial in providing flexibility, workforce, and professional flexibility in all sectors of the economy.

The digitalization of workplaces has increased due to the introduction of Industry, which is defined by the integration of physical, digital, and biological space (Vermesan and Friess, 2022). The competencies that this change demands include data analysis, digital communication, online collaboration, and technology-based problem-solving. Conventional organizational forms are being substituted with agile digitally networked networks. Work is also becoming more and more disconnected with physical place, strongly dependent on cloud computing, virtual communication systems, and digital project management software. With more industries becoming digital-driven, the handicapped graduates lack digital skills exposing them to severe hiring and career advancement issues.

However, the transition to Industry is not equitable (Fernandes et al., 2024). Arifin and Darmawan (2021) emphasized the importance of having access to technology and digital skills in the age of Technology to fill the educational and employment opportunities gaps (Junaedi Panjaitan). In the developing countries, students will not have the opportunity to acquire these mandatory skills due to the absence of basic infrastructure. Access to digital skills is also blocked by barriers like low infrastructure, socioeconomic factors, and gender inequalities. This forms a vicious cycle and thus, people with low socioeconomic statuses are systematically locked out of high-value jobs because they do not have access to technology in their early academic years (Umar and Aziz, 2026). It is important to address these rural-urban and gender gaps in digital access to lead to inclusive policy changes.

Graduates in social sciences are people who have earned a degree in one of the following disciplines: Sociology, Education, Psychology, Political Science, or Economics (Education, 2018). Conventionally, social science courses focus on theoretical knowledge, critical thinking, and profound analysis of the society (Baronov, 2015). These mental capabilities are incredibly useful but these programs do not necessarily include well-organized digital skills education like the use of statistical software, digital research tools, or online professional branding. Social sciences do not regard technology as an inseparable ability, but as an optional and secondary tool unlike highly technical disciplines where technology is the subject matter (Farisi, 2016).

The contemporary economy is not based on a sharp division between technical and non-technical jobs (Branchet and Sanause, 2017). Rather it needs hybrid professionals. Although the current literature is more inclined towards STEM subjects, there is little information regarding social science graduates and their particular digital requirements. A sociologist now has to be familiar with the ability to use data scraping applications and predictive analytics software to perform large-scale demographic research (McCormick T H). A graduate in the field of education needs to know how to use Learning Management Systems (LMS) and digital pedagogical tools in order to

become a successful modern teacher. A political scientist should be able to learn the algorithmic bias and online communication approaches to understand contemporary electioneering campaigns (Sheikh, 2024). Consequently, higher institutions of learning should take the initiative to introduce digital skills training in the social science curriculum to help make these subjects economically viable.

Today, Pakistan is facing an immense youth bulge that is a demographic dividend and a socio-economic nightmare (Ali, 2023). In Pakistan, the rate of unemployment among educated young people is now higher than 30% which means that there is a gross imbalance between the higher education attainment and the real market needs. Economy is faced with the problem of generating enough white-collar jobs to absorb hundreds of thousands of graduates that the higher education sector is generating each year (Brown et al., 2013). This work is warranted by this increasing discrepancy between higher education achievement and labor market needs in Pakistan.

The institutional flaws of the system that fails to equip graduates to meet the labour market are ingrained (Shah, 2025). The digital training and industry integration are not always organized in the university curricula of social sciences. The academic syllabi are often out of date and based on the pedagogical approach which focuses on rote memorization instead of applied, technology-based problem-solving. Analyzing the employability of Pakistani university graduates, (Riaz et al., 2025) paid particularly close attention to the critical analysis of skills and competencies and came to the conclusion that institutional reform is urgently required. Although there are government programs like the National Skills Strategy (NSS) that can facilitate the use of digital training, real implementation in university courses is extremely patchy (Rafiq-uz-Zaman, 2025).

As the economic center of Pakistan, Karachi offers a very competitive labor market, and digital literacy is extremely important in the employability (Ali et al., 2024). The city is home to a high population of multinational companies, financial firms, non-governmental organizations and a growing tech-start-up scene. As a result, the employer demands in Karachi are much higher and more digital conforming, as compared to the less urban or semi-urban areas of the country (Faisal, 2024). The research question of what makes graduates employable, in this case, in District Central Karachi, provides a critical perspective on the future development of the overall urban labor market in the country (Rubab et al., 2025).

The increasing number of quantitative studies prove the direct, positive relationship between the development of digital skills and the improvement of employability (Imran et al., 2025). Uzair et al. (2024) directly focused their cross-sectional analysis on the effect of digital skills on employability and showed that there is a significant statistical relationship between technological competence and successful labor market entry. Riaz et al. (2025) also examined the concept of skills-based education and established that competency outcomes are clearly reflected in the curricula that provide much higher employment rates after graduation.

Recent research points out that career success is not due to owning a degree, but rather a mediating factor, digital competence. Ahmed et al. (2025) examined how the development of digital skills affects the employability of university graduates in Nigeria particularly the mediating effect of digital competence in converting academic knowledge to workplace value. In a similar fashion, Ali et al. (2024) compared the effects of the acquisition of digital skills on the perceived employability of youth, with the perceived quality of the course being a strong mediator in the final outcome in terms of employment. This implies that the training in digital should not be at a surface level but it should be intensive, practical and must be regarded by the learners as of great importance in order to be translated into real employability.

The effectiveness of the targeted policy interventions in the context of education is also highly supported by empirical evidence (Niaz and Rose, 2025). Riaz et al. (2025) examined the role of specific digital skills training on graduate employability using 21st century digital competence in Ogun state Nigeria. Their results proved that in the cases where universities introduce certain, organized interventions that are intended to help to increase the level of digital literacy, the graduates have a much shorter education-employment transition. This highlights why the curriculum and changes should be policy-oriented. Finally, the study enhances sustainable workforce development in line with the trends of global digital transformation by demonstrating the predictability of economic products of particular educational contributions (Aijaz et al., 2024).

Although several governmental and non-governmental programs are aimed at promoting digital literacy, scientific studies that investigate its direct effect on the employability of social science graduates in Karachi have a clearly limited amount (Tahir and Warraich, 2021). The reviewed literature makes it clear that modern employability cannot be achieved without digital skills. It also clearly sets the fact that developing countries such as Pakistan are experiencing a deep educational inappropriateness that leads to high unemployment among graduates. Moreover, it can be seen that social science subjects lack unified digital training in comparison with STEM subjects. Nevertheless, the lack of localized and empirical data exploring this particular intersection in the context of the distinct socioeconomic and competitive environment of Karachi is acute (Jamall, 2024). The current research addresses the generic employability in a broad way or is limited to IT and engineering graduates. This research aims at exploring the importance of digital skills in determining employment and locating the exact gaps that should be addressed in institutions of higher learning that accommodate students of social science in District Central Karachi. This research will fill that crucial gap in academia by offering empirical data on how digital skills can be used to promote employability because it will make use of a structured quantitative method to measure these variables (Fasih, 2025). It also adds to the literature on employability and digital competence in the context of developing countries that is still in great demand (de Villiers Scheepers, 2024). In practice, it gives practical implications to universities in Karachi to incorporate digital skill development in social science programs, identifies competencies important to employers, and educates policymakers about the importance of skill development strategies.

Conceptual Framework

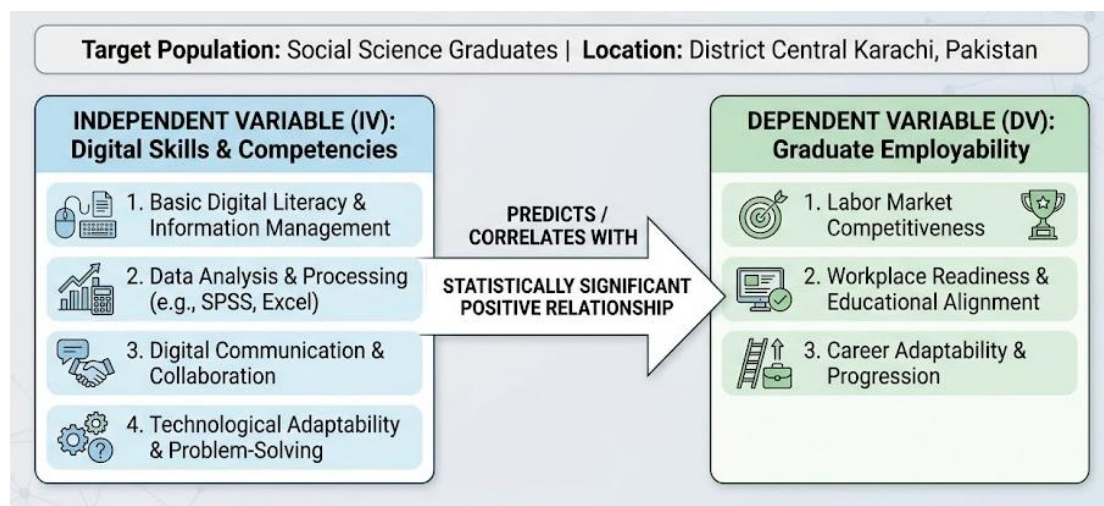


Figure 1. The conceptual framework illustrates the hypothesized predictive relationship between the independent variable (Digital Skills and Competency) and the dependent variable (Graduate Employability).

Research Methodology

The research methodology chapter provided the systematic blueprint used in conducting this study in such a way that the empirical investigation was rigorous, valid, and reliable. In this section, the general paradigm, design, population parameters, sampling plans, and data collection methods were outlined to investigate the effect of digital skills and competencies on the employability of social science graduates in District Central Karachi. Through the meticulous choice of suitable methodological frameworks, the study sought to reduce the bias, mitigate confounding factors, and produce empirical research data that were credible in providing answers to the research questions that were set in relation to the digital skills gap in the modern labor market.

The nature of the research problem and the main goals of the study were the basic factors in the choice of a suitable research method. The study was conducted using a quantitative research methodology. The quantitative methodology was considered the most suitable model for this study since the main goal was to measure the variables objectively (digital skills and employability) and evaluate the statistical relationship between them on the basis of a large sample size.

Quantitative research was based on the gathering of numerical data and using mathematical and statistical tests to prove the predetermined hypotheses. In contrast to qualitative research, where the aim was to investigate subjective experiences and meanings, the quantitative approach enabled measuring particular competencies objectively and generalizing the results to a larger population. Since this research aimed at establishing the exact degree of digital skills, defining percentages of employment condition, and estimating the predictive variability of technological ability on career results, a highly formatted, deductive quantitative methodology was necessary. The approach enabled high-level control over the research setting, which guaranteed that the results concerning graduates in District Central Karachi were statistically significant and replicable to a high extent. The research design acted as the architectural plan of data collection, measurement, and analysis. The type of research that was used in this study was a quantitative and cross-sectional correlational study. The correlational design was specifically selected since the proposed study was aimed at investigating the naturally existing relationship between the independent variable (Digital Skills and Competencies) and the dependent variable (Employability) without controlling any of the variables. Through the application of correlation, the research identified the direction (positive or negative) of the relationship as well as the strength between technological proficiency and the success of graduates in the labor market. In addition, this design also used predictive regression models to determine whether differences in digital skills could be a significant predictor of employment status.

The research was also cross-sectional, meaning that all the data were gathered at a specific and unique time. A cross-sectional survey approach was very beneficial because it was time-saving, cost-efficient, yet offered a very precise insight into the realities of the labor market that new graduates faced at the time. Because the time limits involved in postgraduate research proposals were very strict, it was not possible to track the graduates over a period of several years. Hence, the cross-sectional correlational design best suited the researcher, fulfilled the academic and practical limitations, and guaranteed timely and valid results.

Target Population

The conceptualization of the target population was a key requirement in determining the boundaries of the research. The population of the present study consisted of the graduates of social sciences who had recently graduated from at least two acknowledged universities located in District Central Karachi. The population was narrowed down to the graduates of social science-

related disciplines Sociology, Education, Psychology, Political Science, and Economics. The reason behind targeting this demographic was that unlike graduates of the purely technical or STEM (Science, Technology, Engineering, and Mathematics) disciplines, who were inherently trained in digital skills to a certain degree, social science graduates were often exposed to an existing academic gap in terms of digital competence. The population was also geographically concentrated in District Central Karachi. The largest metropolitan and economic center in Pakistan were Karachi, which had a highly competitive and fast-paced corporate environment that was actively aggressive in seeking modern digital competencies. District Central, specifically, had a high demographic density and a variety of institutions of higher learning, which made it a perfect microcosm for evaluating urban graduate employability. The sample consisted of both employed and unemployed graduates to enable comparative statistical analysis (i.e., independent sample t-tests) between individuals who were successful and those who were not successful in getting absorbed into the workforce.

Sampling Techniques and Sample Size

A stringent and representative sampling plan was adopted to make sound conclusions about the target population.

Sampling Technique: The research was based on Stratified Random Sampling, which was a very powerful probability sampling method. Under this approach, the heterogeneous target population was subdivided into smaller, mutually exclusive, and homogeneous groups called strata. To conduct the research, the strata were determined by certain social science departments (e.g., Stratum 1: Education graduates; Stratum 2: Sociology graduates; Stratum 3: Psychology graduates) in the three chosen universities.

When the population was stratified into these levels, simple random sampling was used to sample the participants in each of the subgroups proportionately. Stratified random sampling was far better than simple convenience sampling since it ensured the fair representation of different sub-disciplines. This avoided the skewed data being overly influenced by one large department, and this went a long way in increasing the external validity and generalizability of the results to the overall spectrum of social science.

Sample Size: The sufficient sample size was important in determining the statistical power that was required to identify any significant correlations. According to the parameters of the research design, the proposed sample size of the study was 120–150 respondents. This was a statistically adequate sample size because, according to common methodological heuristics (the Green or Tabachnick and Fidell formula), a minimum of $50 + 8(k)$ subjects was required, where k was the number of independent variables. The sample size of 120–150 was adequate to provide sufficient statistical power to detect medium-to-large effect sizes with a common alpha level of 0.05.

Research Instruments

A highly structured, researcher-administered questionnaire was the main tool of data collection. The use of questionnaires was typical of quantitative, cross-sectional survey research studies since it enabled the collection of numerical data from a large sample in a standardized format within a brief time frame.

The suggested instrument was properly structured to measure the major variables of the study and was split into three parts:

1. **Section A: Demographic and Academic Information:** In this section, background information was gathered, such as gender, age, degree of specific social science received, university studied at, and current basic employment status (Employed, Underemployed, Unemployed).
2. **Section B: Digital Skills and Competencies Scale:** The independent variable was measured in this section. It included questions that measured different aspects of digital literacy, such as basic computer functions, data processing (e.g., SPSS, Excel), digital communication, and online professional networking.
3. **Section C: Perceived Employability and Career Outcomes:** This section was used to measure the dependent variable, which was the transition of graduates in the labor market, the degree relevancy of their job, and their perceived workplace adaptability.

Part B and C were surveyed with the help of a five-point Likert scale (between 1 = Strongly Disagree and 5 = Strongly Agree, or 1 = Novice and 5 = Expert). The Likert scale was very efficient in determining the subjective measurement of the level of skills and attitude in that it produced interval data which were most suitable for further parametric statistical analysis (including correlation and regression) in SPSS.

Pilot Study

A pilot study was systematically introduced before the actual implementation of the data collection process. A pilot study was a small, initial experiment with the research instrument that was aimed at determining its logistical feasibility, clarity, and initial reliability.

In this study, the draft questionnaire was distributed to a small sample of 15–20 recent social science graduates who were fully excluded from the final study sample since they strictly fit the target population criteria. The main aim of this pilot testing was to establish any wording ambiguity, confusing terms, or structural weaknesses in the questionnaire. The feedback obtained from the pilot participants regarding the time they took to complete the survey and understand the items on the Likert scale was thoroughly analyzed. Considering these empirical findings, the questionnaire was reformulated and optimized so that the final tool was fully calibrated to yield perfect and high-quality data in the main stage. The pilot study was used to statistically determine the reliability of the instrument through the calculation of internal consistency by the use of the Cronbach Alpha coefficient. The most commonly applied measure of the reliability of Likert-scale questionnaires was known as Cronbach Alpha. A reliability coefficient of 0.70 and above was regarded as academically acceptable, meaning that the items of the scales had a strong correlation and were consistently assessing the variable under question.

Trustworthiness

Although statistical reliability was largely used in quantitative research, the underlying principles of the notion of trustworthiness (which was frequently the focus of qualitative research) were ensured in this case by rigorous and transparent procedural design. Moreover, the aspects of Methodological Triangulation were conceptually used to reinforce the findings of the study. The research itself triangulated the findings by including data from several different strata (different disciplines, such as Sociology, Education, and Psychology) and applying that data to different statistical tools (Descriptive, Correlational, and Predictive Regression). Such cross-verification of the structure increased the overall reliability and justifiability of the final empirical conclusions.

Method of Data Collection

The data collection procedure was conducted systematically to ensure a high response rate and the ethical treatment of all respondents. The procedure followed a clear, sequential protocol:

1. **Institutional Approval:** The administrative departments of the three selected universities in District Central Karachi were approached through formal permission letters seeking access to the respective universities' recent graduate alumni networks.
2. **Survey Distribution:** The data were gathered using an online survey system as the major method of ensuring that the collected data were easily accessed and managed. The format of the study was quite suitable since it was based on online skills. Nevertheless, to reduce possible non-response bias, hard copies of the questionnaire were also administered within the university campuses during graduation events or alumni meetings.
3. **Administration and Follow-up:** The potential respondents identified under the stratified random sampling model were contacted through official emails or academic network groups. A short, clear description of the purpose of the study was given to them, and they were directly connected to the survey.
4. **Data Compilation:** After the target sample size was achieved, the raw data were safely exported from the digital platform, thoroughly cleaned to remove any incomplete or invalid responses, and coded into the Statistical Package for the Social Sciences (SPSS) software to be formally analyzed.

Data Analysis

Demographic Characteristics of Respondents

The demographic profile of the respondents who participated in the study is presented in this section. Demographic analysis is crucial in quantitative research because it allows for the understanding of the background characteristics of the participants and helps in the interpretation of the main findings. The respondents were analyzed through the following: gender, age group, academic discipline, year of graduation, and current employment status.

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	63	50.0
	Female	63	50.0
Age Group	20–23 years	26	20.6
	24–27 years	31	24.6
	28–30 years	30	23.8
	Above 30 years	39	31.0
Social Science Discipline (Degree Major)	Education	43	34.1
	Sociology	6	4.8
	Psychology	23	18.3
	Political Science	8	6.3
	Economics	24	19.0
	Other	22	17.5
Year of Graduation	2022	21	16.7

	2023	9	7.1
	2024	67	53.2
	2025	29	23.0
Current Employment Status	Employed (Full-time in a field highly relevant to degree)	52	41.3
	Employed (Part-time / Freelance)	23	18.3
	Underemployed (Working in a job not requiring degree level)	22	17.5
	Unemployed (Actively seeking work)	16	12.7
	Unemployed (Not actively seeking work / pursuing further studies)	13	10.3

This table shows the demographic profiles of the 126 respondents in this study. In terms of gender distribution, the sample was equally divided (50.0% males and 50.0% females). This ensured that the study results were not skewed towards one gender and gave a more balanced view of the link between digital skills and employability of social science graduates.

Regarding age distribution, the highest proportion of respondents were in the age group over 30 years (31.0%) followed by age group 24–27 years (24.6%), age group 28 – 30 years (23.8%) and age group 20 – 23 years (20.6%). The distribution indicates that relatively recent graduates were included in the study, as well as somewhat older graduates, and thus provides a more generalizable picture of experiences of employability for graduates across age groups.

The largest group in the sample were Education graduates (34.1%), followed by Economics graduates (19.0%), Psychology graduates (18.3%) and those from other social science disciplines (17.5%). Political Science had the second highest representation of 6.3%, and Sociology had the lowest representation of 4.8%. The variation shows that the study was able to capture perspectives from a variety of social science disciplines and thus increased the representativeness of the findings.

In terms of year of graduation, most respondents graduated in 2024 (53.2%), suggesting that the majority of respondents were recent graduates and in the process of joining the labour market. The 2025 graduates were 23.0%, and the 2022 and 2023 graduates were 16.7% and 7.1%, respectively. This distribution reinforces the relevance of the study in the context of the current situation in the labor market and the demands of digital competence in the current era.

In terms of employment status, the largest group had full-time employment in a role which was strongly related to their qualifications (41.3%). In addition, 18.3% worked on a part-time or freelance basis, and 17.5% were underemployed (working in a job that did not require their qualifications). Fewer respondents were without work but looking for work (12.7%) and fewer were not working or further studying (10.3%). Through this employment distribution, an appropriate basis for comparative analysis of employability outcomes in relation to digital competencies was provided.

Reliability Analysis

To determine the internal consistency of the measurement scales used in the study, reliability analysis was performed. To assess the reliability of the questionnaire items, Cronbach's Alpha was

used as the statistical criterion. The acceptable level of Cronbach's Alpha coefficient is 0.70 or above, which means that the items are consistently measuring the intended construct, acceptable for social science research.

Table 2: Reliability Statistics of Study Variables

Variable	Number of Items	Cronbach's Alpha
Digital Skills and Competencies	12	0.942
Employability / Career Outcomes	8	0.730

The reliability statistics of the study variables are shown in this table. The Digital Skills and Competencies scale (12 items) had a Cronbach's Alpha of 0.942 which was excellent. This extremely high reliability value indicates that the items in the questionnaire that measured the digital skills were highly correlated and generally represented the same construct. This result indicates that the digital skills measurement scale was statistically robust and highly dependable for further inferential analysis, with an alpha coefficient of such a high value. Likewise, the Employability / Career Outcomes scale (8 items) also achieved a Cronbach's Alpha of 0.730, which is an acceptable reliability score for social science research. This means that the items in the scale that measured the dependent variable had satisfactory internal consistency and were reliable enough for this purpose. The overall results of the reliability indicated that both measurement scales in this study were statistically reliable and suitable for descriptive, correlational and regression analysis.

Correlation Analysis Between Digital Skills and Employability

Pearson product moment correlation analysis was used to analyze the correlation between digital skill and employability of social science graduates in District Central Karachi. Pearson correlation is a suitable statistical method to determine the direction and strength of the relationship between two continuous variables. The analysis was conducted in order to determine if there was a correlation between increased levels of digital skills and improved employability outcomes.

Table 3: Correlation Between Digital Skills and Employability

Variables	Digital Skills	Employability Score
Digital Skills	1	0.731**
Employability Score	0.731**	1
Sig. (2-tailed)	—	< 0.001
N	126	126

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

The Pearson correlation analysis of the respondents' digital skills and employability is shown in this table. Results showed there was a strong positive relationship between digital skills and employability ($r = 0.731$, $p < 0.001$) and statistically significant. The direction of the relationship was positive, meaning that students with higher digital skills were more likely to report positive outcomes in the employability domain, such as job readiness, adaptability to the workplace, and self-confidence in obtaining employment. Based on the statistical interpretation standard, the correlation coefficient of 0.731 shows that the relationship between digital competency and employability of social science graduates is strong, meaning that the digital competency has a significant influence on the employability of social science graduates. Moreover, the p value of <0.001 indicates that the relationship observed was highly statistically significant and was unlikely to be due to chance. This gives good empirical evidence in support of the assumption of a positive

relationship between digital skills and employability in the current labor market. Overall, the correlation results have shown that the digital skills are an important aspect of the employability of social science graduates of District Central Karachi, thus confirming the theoretically stated that technological competence would be an important factor for the graduates to enhance their employability and adaptability in modern working environment.

Regression Analysis of Digital Skills and Employability

Simple linear regression analysis was performed to see the predictive effect of digital skills on employability of the social science graduates of the District Central Karachi. In order to measure the amount of variance in a dependent variable, which is predicted by the independent variable, regression analysis is a suitable statistical method. Digital skills in this study were seen as predictor variable and employability score as dependent variable.

Table 4: Model Summary of Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0.731	0.535	0.531	0.31255

Predictor: Digital Skills

Dependent Variable: Employability Score

This table shows the results of the simple linear regression analysis carried out to see if there is a significant relationship between the three digital skills and employability of social science graduates. The model summary shows that there is a high level of correlation between the predictor and outcome variable ($R = 0.731$), indicating a significant positive relationship between digital skills and employability. The R^2 coefficient of determination (0.535) suggests that about 53.5% of the variance in employability scores of the respondents was explained by digital skills. The adjusted R^2 value (0.531) was very close to the original R^2 , indicating that no sampling variation was distorting the predictive relationship and the model was stable. This shows that digital skills are an important explanatory variable for social science graduates' employability.

Table 5: ANOVA Results of Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.910	1	13.910	142.396	<0.001
Residual	12.113	124	0.098		
Total	26.023	125			

Dependent Variable: Employability Score

The ANOVA results indicated that the regression model was statistically significant ($F(1,124) = 142.396, p < 0.001$), meaning that the model as a whole was a good fit to explain variation in employability scores. A very low p-value validates the predictive association between digital skills and employability is not by chance.

Table 6: Regression Coefficients

Predictor Variable	B	Std. Error	Beta	t	Sig.
Constant	1.948	0.139		13.967	<0.001
Digital Skills	0.478	0.040	0.731	11.933	<0.001

Dependent Variable: Employability Score

The regression coefficients also showed that digital skills positively and significantly affected employability ($B = 0.478$, $\beta = 0.731$, $t = 11.933$, $p < 0.001$). This means that with an increase of one unit in digital skills, the employability score rose by an average of 0.478 units, showing a high positive predictive effect.

In general, the results obtained from the regression analysis support the notion that digital skills are a major and powerful predictor of employability of social science graduates in District Central Karachi. The results have confirmed the theoretical assumption of the study that the level of digital competency significantly increases the employment readiness, adaptability and competitiveness of graduates in today's labor market.

Independent Samples T-Test for Digital Skills by Employment Status

To determine if there were any statistically significant difference in the respondents' digital skills between those working full time in a degree relevant role and those working part-time or freelance, an independent samples t-test was performed. Independent samples t-test is a suitable statistical method for comparing the mean scores of two independent groups.

Table 7: Independent Samples T-Test for Digital Skills by Employment Status

Employment Status	N	Mean	Std. Deviation
Employed (Full-time in a field highly relevant to degree)	52	3.6234	0.75812
Employed (Part-time / Freelance)	23	3.5435	0.67273

Independent Samples Test

Test	Value
Levene's Test Sig.	0.165
t-value	0.435
df	73
Sig. (2-tailed)	0.665
Mean Difference	0.07992

The independent samples t-test results comparing the digital skills of those respondents who were working full-time in a position related to their degree with those who were working part-time or freelancing are shown in Table 4.7. Descriptive statistics show that those who were in full-time employment had a slightly higher mean digital skills score ($M = 3.62$, $SD = 0.76$) than those in part-time, or freelance employment ($M = 3.54$, $SD = 0.67$). The significance value for Levene's Test for Equality of Variances is 0.165, which is above the threshold level of 0.05. This means that the equal variances assumed row was appropriate for interpretation as the assumption of equal variances was satisfied. Independent samples t-test showed that the difference in digital skills between the two groups of employment was not significant ($t(73) = 0.435$, $p = 0.665$). The p value was greater than 0.05, thus the null hypothesis (no significant difference) was accepted. The results indicated that there was no significant difference between the digital skills of full-time employed respondents and part-time or freelance respondents, though there was a slight difference. Thus, there was no significant difference in the levels of the digital skills of the respondents according to the type of employment in these two categories.

Discussion

Summary of the Study

The primary objective of this study was to probe the correlation between digital skills and employability of social science graduates in District Central Karachi. Digital competence is a basic need for being employable, adaptable in the workplace and also for long-term career development in today's more and more technology based labour market. But students in the social sciences have been seen as struggling to get technological skills sought by employers. The study used a quantitative cross-sectional research design to empirically explore this issue. The participants in this study were 126 social science graduates from various fields of study and a structured questionnaire was administered to them and the data collected were subsequently analyzed with the help of the Statistical Package for the Social Sciences (SPSS). Reliability testing, descriptive statistics, Pearson correlation analysis, simple linear regression analysis and independent samples t-test were used to determine the relationship between digital skills and employability outcomes.

Findings of the Research

The study had the following significant findings based on the statistical analysis performed. The demographic analysis showed that there were an equal number of male and female respondents, thus providing balanced gender representation. The majority of respondents were recent graduates, especially those from the 2024 graduating class, indicating that the study was successful in capturing people as they made the transition into the labor market. The education graduates were the largest academic group with the Economics and Psychology graduates following, with a diverse representation of social science disciplines. The reliability test showed that the instrument used was statistically reliable. The Digital Skills and Competencies scale had a very high internal consistency with a Cronbach's Alpha of 0.942 and the Employability scale had an acceptable level of internal consistency with a Cronbach's Alpha of 0.730. These results showed that the measurement instruments were appropriate for further inferential statistical analysis. The Pearson correlation analysis showed that digital skills positively and significantly correlated with employability ($r = 0.731$, $p < 0.001$). This suggests that those who had higher digital skills were more likely to have positive employment experiences, such as being more ready to work, adapt to the workplace and feel confident about job opportunities. The regression analysis also revealed that digital skills are an important determinant of employability. The model accounted for about 53.5% of the variance of the employability scores ($R^2 = 0.535$), suggesting that digital competence is a significant explanatory factor for employability outcomes of social science graduates. The regression model was statistically significant ($F = 142.396$, $p < 0.001$) and the regression coefficient determined that digital skills had a strong positive predictive power on employability. An independent samples t-test was conducted to compare the digital skills of full-time employed graduates with part-time/freelance respondents and the results indicated no significant difference ($t = 0.435$, $p = 0.665$). The mean digital skill scores were marginally higher for the full-time employee group, but the difference was not statistically significant, indicating that the digital competency of the two employment groups was not significantly different.

Conclusion

The results of this study indicate that the digital skills are very important for employability of social science graduates of District Central Karachi. In an increasingly digitalized labour market, technological skills are now a key dimension in assessing graduate competitiveness, adaptability and career readiness. The positive correlation between digital skills and employability validates the fact that digital skills are indeed important for employment and that students with higher digital

skills are more likely to acquire jobs and meet the requirements of the job market. The regression results also corroborate this conclusion by showing that digital skills is a statistically significant variable in the prediction of employability. This indicates that digital literacy is no longer a secondary employability skill but part of the essential skills needed in the modern workplace. While the difference between employment groups was not statistically significant, the overall results indicate that technological competence is a key factor in determining the employment prospects of graduates. In summary, the study finds that there is a need to enhance digital skills of social science students to equip them for job opportunities and to close the gap between social science education and industry requirements.

Recommendations

The empirical results of this study suggest a number of practical suggestions. The universities need to include a certain digital skill training in the social science course so that students are equipped with the skills according to the requirements of the workplaces. This can involve instruction in data analysis programs, online communication tools, spreadsheets, collaborative online tools, and professional networking sites. In addition, career readiness and employability development programs should be introduced in academic institutions in particular for the non-technical graduates. These programs can assist students to make their academic skills more relevant to the employers and the technology needed. The graduates also need to be proactive in lifelong learning and continuous skill upgrading to stay competitive in the changing job market. As digital transformation is changing the employment landscape, it is important to think of lifelong learning of digital skills as a necessity and not an option. Future research could be extended by increasing the sample size, geographical representation, and comparing the findings of this study with other academic disciplines or provinces to further add to the knowledge about the link between digital skills and employability in Pakistan.

References

1. Acharya, D. B., Kuppan, K., & Divya, B. (2025). Agentic AI: Autonomous intelligence for complex goals—A comprehensive survey. *IEEE Access*, *13*, 18912-18936.
2. Adedoyin, F. (Ed.). (2025). *Digital Competence in Agile and Hierarchical Organizations: Operational Performance Under Global Uncertainties*. Taylor & Francis.
3. Ahmed, S., Hashmi, K., & Zaib, S. (2025). The Causal Pathways to Digital Teaching Competence: A Structural Analysis of Key Predictors of Teacher Education Programs in Karachi, Sindh. *The Critical Review of Social Sciences Studies*, *3*(4), 2494-2508.
4. Aijaz, U., Lodhi, K. S., Shamim, M. A., & Mughal, S. (2024). Economics of education and digital learning for human capital development in Pakistan: A critical review. *Quantic Journal of Social Sciences*, *5*(1), 217-234.
5. Ali, S. H. (2023). Youth population in Pakistan: Leveraging growth for national advancement. *Research Journal for Societal Issues*, *5*(4), 26-44.
6. Ali, W., Rahman, A., & Karsidi, R. (2024). Sustainable skill development in Pakistan: Bridging gaps in vocational and technical education policy—a systematic literature review. *Society*, *12*(2), 656-673.
7. Ashraf, S., Batool, R., Anjum, G., Younas, A., & Ashfaq, M. (2025). Advancing Digital Learning in Pakistani Universities: A Mixed-Methods Analysis of Achievements, Obstacles, and Future Prospects. *Journal of Social Sciences Research & Policy*, *3*(2), 350-366.
8. Baronov, D. (2015). *Conceptual foundations of social research methods*. Routledge.

9. Bobek, V., Nambasa, H., & Horvat, T. (2025). Digital transformation strategies: comparative impacts on white-collar and blue-collar workers in Austria. In *Organizational Behavior: Current Science, Models, and Applications* (pp. 773-801). Cham: Springer Nature Switzerland.
10. Branchet, B., & Sanseau, P. Y. (2017). From technical to non-technical skills among information systems suppliers: An investigation in the skills domain. *Journal of enterprise information management*, 30(2), 320-334.
11. Brown, P., Lauder, H., & Ashton, D. (2013). Towards a high-skills economy: Higher education and the new realities of global capitalism. In *World Yearbook of Education 2008* (pp. 190-210). Routledge.
12. De Villiers Scheepers, M., Mulcahy, R., Fleishman, D., English, P., Burgess, J., & Crimmins, G. (2024). Digital career competencies: A co-created scale for the digital employability competencies we've overlooked. *Industry and Higher Education*, 38(5), 411-422.
13. Education, H. (2018). Social Sciences. *She is involved in various responsibilities here.*
14. Faisal, A. (2024). *The Political Economy of Land Development in Karachi* (Master's thesis, Dartmouth College).
15. Farisı, M. (2016). Developing the 21st-century social studies skills through technology integration. *Turkish online journal of Distance Education*, 17(1), 16-30.
16. Fasih, M. (2025). Bridging the Gap Between Higher Education and Employment: An Empirical Study of Graduate Employability Challenges and Industry Readiness in Pakistan. *Periodicals of Social Sciences*, 5(1), 1-17.
17. Fernandes, F., Birch, R., & de Andrade Guerra, J. B. S. O. (2024). Equality, Inequality and Industry 4.0: Proposing a Theoretical Framework. In *Sustainable Development Seen Through the Lenses of Ethnoeconomics and the Circular Economy* (pp. 75-89). Cham: Springer Nature Switzerland.
18. Getu, T. M., Kaddoum, G., & Bennis, M. (2024). A survey on goal-oriented semantic communication: Techniques, challenges, and future directions. *IEEE Access*, 12, 51223-51274.
19. Ghafoor, S., Rehman, A. U., & Tan, R. (2025). Economic Dynamics of Pakistan: Exploring Strengths, Weaknesses, Opportunities, and Challenges. *Qlantic Journal of Social Sciences*, 6(3), 264-277.
20. Gulzar, F., Khalid, S., Yasin, A., & Raza, K. (2024). Youth employment challenges and opportunities in Pakistan: An econometric analysis. *Review of Applied Management and Social Sciences*, 7(4), 409-429.
21. Hassan, M. (2025). Higher Education and Labor Market Outcomes: Investigating the Rise of Educated Unemployment. *Universal Insights in Research and Innovation*, 1(01), 01-13.
22. Imjai, N., Chansamran, S., Sungthong, S., Usman, B., & Aujirapongpan, S. (2025). Developing employability digital competencies of Thai Gen Z business students: The role and matter of digital learning environments and digital adaptation skills. *The International Journal of Management Education*, 23(3), 101219.
23. Imran, S., Rafiq, S., & Ullah, Z. (2025). Analyzing the Effectiveness of Vocational Education in Enhancing Employability and Skill Development: A Domain-Based Quantitative Study. *Social Science Review Archives*, 3(1), 3040-3050.
24. Jabeen, R. (2024). AN ANALYSIS OF TECHNOLOGY-BASED MATERIALS FOR COMPUTERSCIENCE INSTRUCTION. *Spectrum of Engineering Sciences*.
25. Jamall, S. M. (2024). *Postcolonial Paradox: A Study of Contradictions in Karachi, Pakistan* (Doctoral dissertation, Doctoral dissertation, Sonoma State University).

26. Junaedi, A. T., Panjaitan, H. P., Yovita, I., Veronica, K., Renaldo, N., & Jahrizal, J. (2024). Advancing digital and technology literacy through qualitative studies to bridging the skills gap in the digital age. *Journal of Applied Business and Technology*, 5(2), 123-133.
27. Kovari, A. (2025, January). Ethical use of ChatGPT in education—Best practices to combat AI-induced plagiarism. In *Frontiers in Education* (Vol. 9, p. 1465703). Frontiers..
28. Lechman, E., & Popowska, M. (2022). Harnessing digital technologies for poverty reduction. Evidence for low-income and lower-middle income countries. *Telecommunications Policy*, 46(6), 102313.
29. Martínez-Bravo, M. C., Sádaba Chalezquer, C., & Serrano-Puche, J. (2022). Dimensions of digital literacy in the 21st century competency frameworks. *Sustainability*, 14(3), 1867.
30. McCormick, T. H., Lee, H., Cesare, N., Shojaie, A., & Spiro, E. S. (2017). Using Twitter for demographic and social science research: Tools for data collection and processing. *Sociological methods & research*, 46(3), 390-421.
31. Memon, A. A., & Liu, Z. (2019). Assessment of sustainable development of the performance of higher education credentials in the transitive labor market. *Sustainability*, 11(9), 2628.
32. Mohammad, Z. (2025). *Bridging the Gap: Graduate and Employer Perspectives on Employability Skills Development in Higher Education—A Mixed Methods Study in Jordan* (Doctoral dissertation, Leeds Beckett University).
33. Moloto, A. N., Ramasimu, N. F., Motsei, L. L., & Muchie, M. (2025). Graduate Unemployment, Skills Mismatch, and the Dynamics of Labour Mobility in South Africa: A Systematic Literature Review. *International Journal of Applied Research in Business and Management*, 6(5).
34. Musa, S., Nurhayati, S., & Boriboon, G. (2025). The Effect of Internships on Graduates' Employability, Soft Skills, and Digital Competence. *Educational Process: International Journal*, 17, e2025306.
35. Niaz, L., & Rose, P. (2025). A Review of Scalable Education Interventions in Pakistan: Enablers, Challenges, and a Framework for Scaling.
36. Nyale, D., Karume, S., Kipkebut, A., & Mukudi, F. (2025). Digital skills landscape: A systematic review of current academic programs, industry demands, and the digital divide's impact on graduate competencies. *Industry and Higher Education*, 09504222251370105.
37. Nyale, D., Karume, S., Kipkebut, A., & Mukudi, F. (2025). Digital skills landscape: A systematic review of current academic programs, industry demands, and the digital divide's impact on graduate competencies. *Industry and Higher Education*, 09504222251370105.
38. Parvez, W. (2025). The Impact Of Digital Illiteracy On Cybersecurity Vulnerabilities: A Demographic Study In Pakistan.
39. Patel, S. (2023). of Digital Transformation. *Handbook of Research on Digitalization Solutions for Social and Economic Needs*, 305.
40. Rafiq-uz-Zaman, M. (2025). Bridging the skills divide: A comparative study of skill-based education across SAARC countries with a policy roadmap for Pakistan. *Social Science Review Archives*, 3(3), 787-795.
41. Rehman, T. U. (2025). The transformative impact and evolving landscape: A comprehensive exploration of the globalization of higher education in the 21st century. *Journal of Further and Higher Education*, 49(3), 346-361
42. Riaz, N., Tarar, A. H., Tarar, M. A., & Arif, M. (2025). Examining the employability of university graduates in Pakistan: A study of skills and competencies. *International Journal of Social Sciences Bulletin*, 3(5), 93-113.
43. Rubab, T., Raza, H., Rahman, A., Sultana, N., Ali, Z., & Noor, F. (2025). Pakistan Labour Market Dynamics: The Way Forward for Unemployment, Informal Employment, And

- Interventions to Promote Efficiency and Growth of the Labour Market. *Social Science Review Archives*, 3(4), 4191-4200.
44. Shah, Z. (2025). Navigating challenges in higher education in Pakistan: Curriculum, research, and faculty issues. *Contemporary Journal of Social Science Review*, 3(1), 426-442.
 45. Sheikh, S. A. (2024). Data and democracy: Social media analytics in political campaign strategies. *International Journal of English Literature and Social Sciences*, 9(1), 204-211.
 46. Surono, S. (2025). Enhancing Workforce Adaptability Through Structured Digital Literacy Skill Set and Competency Standard: A Research and Development Study. *Edunity Kajian Ilmu Sosial dan Pendidikan*, 4(8), 579-599.
 47. Tahir, M., & Warraich, N. F. (2021). Assessing the technological competencies of Library and Information Science graduates and their employment outcomes: A case study of Pakistan. *Journal of Library Administration*, 61(5), 611-626.
 48. Tyagi, A. (2024). Adapting To Digital Transformation: Cognitive Automation and Globalization in the Modern Economy. *Human Cognition: In the Digital Era*, 137.
 49. Umar, M., Aziz, M. A., Christiansen, B., & Merhabi, M. A. (2026). Networked or Excluded?: A Critical Review of Social Capital, Career Access, and Informal Disadvantage in Graduate Employment. *Enhancing Graduate Employability in an Evolving Workforce*, 417-436.
 50. Uzair, M., Ullah, S., Shakoor, F., Khan, K., Ismail, M., & Hassan, S. (2024). Impact of Technological Change on Level of Employment: A Case Study of Pakistan. *Journal of Asian Development Studies*, 13(4), 326-340.
 51. Yahui, S., & Dagogo, B. H. (2025). University Graduates and Employment Challenges: Causes, Impacts, and Countermeasures. *Peta International Journal of Social Science and Humanity*, 4(3), 63-78.
 52. Zervas, I., Stiakakis, E., Athanasiadis, I., & Tsekouropoulos, G. (2024). A Holistic Approach to Define Important Digital Skills for the Digital Society. *Societies*, 14(7), 127.