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Economics of Education and Digital Learning for Human Capital Development in Pakistan: A Critical Review

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Abstract: *The objective of the research is to better understand how digital learning, specifically how it affects employability, skills, and economic growth, may enhance the development of human capital within the framework of Pakistan's educational system. This research critically examines the economics of education in Pakistan by addressing significant research issues. It examines the financial barriers to education, focusing on issues including financial inequality and procedural hurdles. The research examines how initiatives for curriculum reform and teacher training help educational institutions support human capital development. It also examines the effects of online education, demonstrating its ability to close knowledge gaps and improve digital literacy. Despite obstacles like the digital divide, this research emphasizes the significance of strategic measures to guarantee equal access to high-quality education and build a trained, flexible workforce essential for Pakistan's socio-economic success. However, implement evidence-based policies to enhance the management of education. Research in the future should concentrate on inventive financing approaches and reliable data.*

Key Words: Economics of Education, Human Capital Development, Digital Learning, Pakistan, Critical Review

Introduction

Education in Pakistan

Education is crucial for human development and social advancement, but access is limited in Pakistan due to infrastructure issues, teacher shortages, cultural barriers, and gender-based inequities, particularly in rural regions like Balochistan and Khyber Pakhtunkhwa.(Farrukh et al., 2023). Socio-economic inequalities worsen the issue, as low-income families struggle to afford high-quality education, leading to insufficient options for their children and often attending expensive private universities(Abbas et al., 2022).

Disparities in education and income inequality in Pakistan hinder human capital development, economic expansion, and societal advancement, perpetuating income inequality and limiting overall progress(Aslam et al., 2022). Pakistan needs to invest in teacher training, educational infrastructure, and policies to reduce gender and socio-economic inequities, fostering a more equal and inclusive education system for sustainable development (Farrukh et al., 2023).

Economic Growth and Education

According to research, in Pakistan, there is a complex and important link between education, economic growth, and the development of human capital. Education is essential to promote economic progress (Rani et al., 2022). Therefore, Ahmad et al. (2022) indicated that prosperous economies are more common in

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nations with higher educational degrees. Investments in education in Pakistan have the potential to increase worker productivity, improve technical development, and boost economic activity. Increased GDP growth may result from a workforce that is better equipped to adapt to changing job market needs (Jabeen & Khan, 2022). Additionally, the development of human capital is mostly fueled by education. It provides people with the information, talents, and skills that make up human capital. The long-term economic growth of Pakistan depends on enhancing human capital, as a trained and healthy workforce is more productive and creative. Raising income levels, improving living conditions, and reducing poverty are all possible outcomes of this (Ahmad et al., 2022).

However, issues with Pakistan's educational system still exist. Research indicated that access, quality, and gender disparities continue to be major roadblocks to efficient human capital development (Jabeen & Khan, 2022). Addressing these disparities is necessary to fully utilize education as a catalyst for economic expansion and the building of human capital. Additionally, it is essential to ensure that education is in line with both the demands of the labor market and the evolving global economy in order to maximize its impact on Pakistan's economic growth (Rani et al., 2022).

Education and Human Capital Theory

Human Capital Theory

Gary Becker, who developed human capital theory in the 1960s, views education as an investment in people's abilities and knowledge. It sees education as a financial asset that raises prospective earnings and productivity (Kousar et al., 2023). The theory contends that people spend rationally on education since it has long-term economic advantages. These advantages include increased pay, enhanced career possibilities, and more financial security (Rani et al., 2022). According to the human capital theory, education benefits the individual as well as the whole economy by producing more productive and competent workers. It has been crucial to draw attention to how important education is for lowering income disparity, spurring economic growth, and creating a more competitive workforce (Doane, 2023).

Economics of Education

The study of educational systems using economic ideas is known as the economics of education. It looks at how money is spent on education, how effective and equitable the educational institutions hold a position, and how investing in education pays off financially (Hanushek et al., 2023). In this discipline, elements including educational policy, the effect of educational resources on student results, and the financial benefits of education are taken into account. It is essential to the establishment of educational policies and the evaluation of the effects of different interventions on educational results and economic growth (Taylor, 2023).

Collectively, these fundamental theories offer a thorough understanding of the crucial role that education plays in improving individual human capital, eliminating economic inequities, and promoting economic growth and development. They emphasize the value of education as a financial decision with broad economic and societal ramifications (Hanushek et al., 2023).

Educational Policies and Investment

The effectiveness of government policies and investments in education, including budget allocation and reform initiatives, is one of the most crucial elements in Pakistan for promoting the development of human capital (Manan & Hajar, 2022). A very small portion of Pakistan's budget has historically been allocated to education, which has resulted in subpar facilities, a teacher shortage, and poor educational quality. Even if attempts to raise financing have been made, more consistent investment is required to address these issues and enhance both the quality and accessibility of education (Aman et al., 2022). Similarly, over the years, Pakistan has implemented a number of educational changes, including teacher training initiatives and curriculum upgrades. However, sporadic application and scant follow-through have reduced their efficacy. To promote the development of human capital, it is crucial to ensure the effective implementation and assessment of these changes (Akbar et al., 2022).

Disparities continue despite government initiatives to widen access to education, especially in rural regions and among underprivileged people. Targeted expenditures are necessary to upgrade the educational infrastructure in these areas and provide equal access to high-quality education (Manan & Hajar, 2022). Additionally, it might be difficult to maintain educational quality because of problems, including out-of-date curricula and insufficient teacher preparation. The integration of technology in education, particularly in the aftermath of the COVID-19 epidemic, has become necessary, and this is why it is so important to make investments in teacher training, curriculum creation, and strong quality assurance procedures. Education quality and accessibility may be improved by making investments in digital infrastructure and teacher preparation for online and blended learning (Akbar et al., 2022). However, to gauge the effectiveness of these investments and guarantee progress toward educational and human capital development objectives, frequent monitoring and evaluation should be used (Aman et al., 2022).

Impact of COVID-19 on Digital Learning

Sultan et al. (2023) The COVID-19 pandemic has accelerated digital learning adoption in Pakistan, impacting human capital growth. The sudden shift to online platforms has both advantages and disadvantages. Digital education makes materials more accessible, potentially reducing inequities and offers flexibility for students (Malik et al., 2023). Digital learning has enhanced technological skills for both students and teachers, making them more valuable in today's increasingly tech-driven work market (Kumar et al., 2022).

The digital gap affects students' access to necessary devices and the internet, hindering learning. Concerns arise about virtual education effectiveness and digital information quality, while instructors' readiness for digital shift impacts instruction consistency and quality (Malik et al., 2023). The pandemic has accelerated digital learning in Pakistan, necessitating improvements in content quality and teacher preparedness to maximize the advantages of digital education while ensuring inclusivity and equity (Kumar et al., 2022).

Digital Learning Platforms and Tools

Particularly in response to the COVID-19 epidemic, Pakistan has witnessed a substantial surge in the usage of digital learning platforms and tools. Accessible and adaptable learning alternatives are made possible through learning management systems (LMS) and online educational materials (Zubairi et al., 2022). Thus, many organizations and educational institutions in Pakistan have embraced LMS systems, including Google Classroom, Microsoft Teams, and Edmodo. These systems allow teachers to design, organize, and deliver course materials, homework assignments, and exams online. These platforms allow students to submit assignments, participate in conversations, and access resources while relaxing in their own homes. LMS systems have been especially helpful in providing educational continuity during the pandemic (Burney et al., 2022). Similarly, a number of online educational tools have grown in popularity. A variety of educational content is available online, ranging from K–12 topics to higher education courses, on websites like Khan Academy, Coursera, and edX, as well as regional platforms like SABAQ and Taleemabad. With the help of these materials, a wide range of students may study subjects that interest them and learn at their own speed. Many of these tools are publicly available, which increases access to and affordability of education (Zubairi et al., 2022).

Furthermore, some TV networks, including Tele-School, have begun airing educational programming for children without internet access as a reaction to Pakistan's digital divide. These television shows give kids, especially those in underprivileged areas, access to crucial learning opportunities (Burney et al., 2022). Although there are still issues with the digital divide, the requirement for teacher preparation, and the need for content localization, the adoption of these digital learning platforms and tools has the potential to improve educational access and quality. To fully use digital education in Pakistan, efforts to eliminate these gaps would be essential (Zubairi et al., 2022).

Digital Learning in Pakistan

Pakistan's educational landscape has significantly transformed due to the widespread use of online platforms, mobile devices, and internet connectivity, providing convenient and affordable learning options (Zubairi et al., 2022). Government initiatives like the prime minister's e-learning program and DigiSkills program have accelerated digital literacy and skill development, offering various courses across academic disciplines, technological skills, and languages (Malik et al., 2023). COVID-19 has accelerated digital learning adoption, but issues like the digital divide, rural internet connectivity, and teacher preparation remain, hindering Pakistani students' empowerment, educational outcomes, and socio-economic advancement (Burney et al., 2022).

Methodology

Research Purpose

This study paper's main goal is to address and close key research gaps in the disciplines of education, economy, and human capital development in Pakistan. Using a detailed and analytical technique, this study aims to provide a contemporary assessment of the trends and situations in Pakistan's educational system. By studying how governmental policies, funding, and tuition rates impact educational access and quality (Widyaningsih & Arif, 2022), The purpose of the study is to shed light on the intricate relationship between economic factors and academic outcomes. The research also looks at how Pakistan's educational system creates human capital, evaluating how effectively public and private schools, curricula, and instructional methods provide pupils with the skills they require to prosper in the future. This study is significant because it examines the role of digital learning in this environment and how current technology and online resources promote the development of human capital (Swanson, 2022). This paper evaluates Pakistan's educational system, focusing on financial aspects and digital learning, offering insights for policy changes, educational reforms, and human capital development strategies.

Research Questions

RQ1: What are the current trends and situation of the economics of education in Pakistan?
RQ2: How do the educational system and institutions develop human capital in Pakistan?
RQ3: How does digital learning contribute to human capital development in Pakistan?

Review Technique

The current paper is based on critical reviews of the related literature. The main goal of a critical review is to examine, analyze, and critique previously published works of literature, research, or other types of material in order to pinpoint their advantages and disadvantages, present a fair and well-informed viewpoint, and further improve the scholarly knowledge of the subject (Pomirleanu et al., 2023). The capacity of the critical review approach to systematically examine and analyze the corpus of literature on the economics of education, human capital development, and digital learning in Pakistan makes it particularly appropriate for this research. It allows for a thorough assessment of the research's advantages, disadvantages, and gaps, enabling the discovery of important themes and open-ended investigations. By using this method, the research may give a thorough, educated overview of the region and produce insightful information that will help direct future research and policy development in these important areas of education.

Eligibility Criteria

Inclusion Criteria

The inclusion criteria for this research are mentioned below:

- The studies included in this paper should be published between 2020 and 2023 to ensure the most current and relevant information.
- Sources must directly relate to the research questions, which pertain to the economics of education, human capital development, and the role of digital learning in the context of Pakistan.
- The study or source should primarily focus on Pakistan or include substantial content related to the Pakistani education system, economic factors, and digital learning initiatives. The paper also includes

literature on other countries, such as India, Malaysia, China, the US, and Turkey, while doing a comparative analysis of these nations.
- Peer-reviewed academic articles, scholarly journals, government reports, and publications from reputable educational institutions are preferred to ensure high-quality and reliable information.
- The studies written in English were included for effective analysis, interpretation, and integration into this study.
- The sources included were readily accessible through libraries, academic databases, or open-access platforms.

Exclusion Criteria

Below are the exclusion criteria for this research

- The research has excluded sources published before 2020 and after 2023.
- Exclude sources that do not directly address the economics of education, human capital development, or digital learning.
- Sources that lack academic rigor, including commercial websites, opinion pieces, blogs, and non-peer-reviewed sources, were also excluded.
- Exclude sources that are not available in English or do not have credible English translations, as language barriers may hinder effective analysis.
- Exclude sources with outdated or insufficient data, statistics, or methodologies that may no longer reflect the current state of education in Pakistan.
- Sources that are not accessible through the institution's library resources, academic databases, or open-access platforms were also excluded, as they may hinder the researcher's ability to thoroughly review and cite the material.

Search Strategy and Keywords

The researcher started their investigation by using the chosen search technique and keywords to do a preliminary search on Google Scholar. This entailed searching for publications about the economics of education, the development of human capital, and digital learning in Pakistan from 2020 to 2023. The search results were evaluated by the researcher to find authors and publications that could be pertinent. They were able to assess the volume of literature that was accessible in their study field thanks to this first step. The researcher employed Google Scholar's advanced capabilities, such as author name, publication information, or a narrower date range, to refine their search further. This made it easier to focus the search and find particular items. For a more precise search, the researcher also employed Boolean operators to combine keywords effectively. Search terms included:

- "economics of education in Pakistan"
- "human capital development "
- "digital learning AND Pakistan"
- "education policies in Pakistan"
- "Impact of online education in Pakistan"
- "skills development in Pakistan"
- "government spending on education"
- "educational technology in Pakistani classrooms"
- "human capital goals"
- "economics of education in Pakistan AND human capital development AND digital learning"
- "globalization AND higher education"

Literature Review

Economics of Education and Human Capital Development

Economics of Education in Pakistan

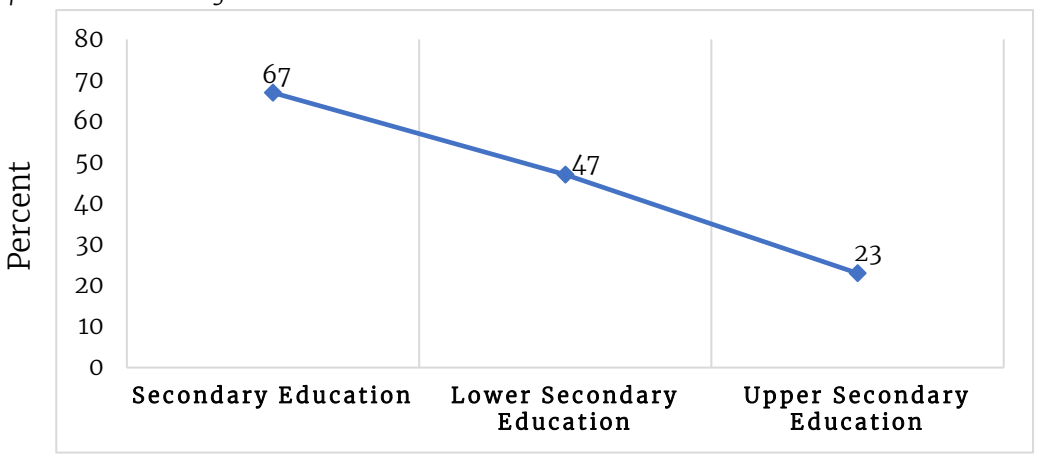
According to research, economic factors are very important in determining Pakistan's educational environment. Due to a variety of budgetary limitations and resource management concerns, the nation has several difficulties in providing high-quality education (Burney et al., 2022). The amount of money allotted

to education by the Pakistani government sometimes falls short of GDP, leaving little money for the creation of new facilities, teacher preparation programs, and curricula (Zubairi et al., 2022). Similarly, Urban and rural communities are sometimes treated differently in the distribution of educational resources. Rural schools are often underfunded since urban schools often receive more financing. Due to this, there is a gap between urban and rural education, and rural communities have restricted access to high-quality education (Sultana et al., 2022). Despite government attempts, Pakistan's public schools frequently have budgetary difficulties. A lack of trained professors, out-of-date texts, and subpar facilities can be caused by insufficient funding. As a result, public school education is frequently of poor quality (Malik et al., 2023)

The private sector's success in Pakistan's education sector has led to increased access but also discrepancies in quality. International organizations and donor agencies boost Pakistan's education budget, exacerbated by social and economic inequities (Sultana et al., 2022). Education differences in Pakistan are a result of economic inequality. Due to the high expenditures of attending school, including uniforms, books, and transportation, children from low-income households sometimes do not have access to a high-quality education (Burney et al., 2022).

Figure 1

Population attending school in Pakistan.



According to Figure 2.1, the completion rates for elementary, lower secondary, and higher secondary education are 67%, 47%, and 23%, respectively (Survey, 2022).

Quality of Education

Iqbal et al. (2022) Pakistan's curriculum, teaching standards, and educational infrastructure face challenges hindering social and economic progress. The outdated curriculum, often promoting memorization and rote learning, hinders critical thinking and problem-solving, affecting human capital development. Due to this, students are less able to apply their knowledge in real-world settings, which hinders their flexibility in the workplace (Abbass et al., 2022). Pakistan's teaching standards are subpar due to insufficient qualified teachers, particularly in rural areas, and a focus on exams, which hinders holistic development and creativity (Iqbal et al., 2022).

Moreover, inadequate facilities, especially in public schools, make learning more difficult. The entire educational experience of students is hampered by inadequate infrastructure, crammed classrooms, and a dearth of contemporary tools and technology. Students who live in underprivileged areas are disproportionately affected by this (Abbass et al., 2022). Educational obstacles in Pakistan hinder human capital development, leading to decreased production, increased unemployment, and perpetuating poverty, highlighting the need for improved education quality (Iqbal et al., 2022).

Addressing challenges like modernizing curriculum, enhancing teacher preparation, investing in infrastructure, and advancing gender equality in education can boost Pakistan's human capital, promoting long-term economic growth. (Burney et al., 2022).

Public vs. Private Education

In Pakistan, public and private education provide different results and have various costs, which have varied effects on the development of the nation's human capital.

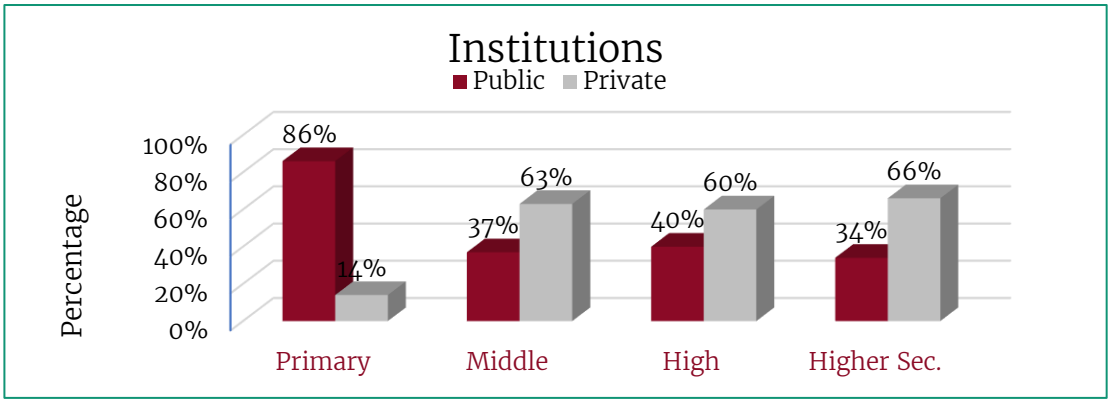
While seeking to be accessible to all, public education in Pakistan frequently faces resource constraints. Results differ greatly as a result. A lack of quality is brought on by insufficient funding, unqualified teachers, out-of-date courses, and crammed classrooms. Since public education cannot fully build human capital, a workforce with a range of knowledge and skill levels may arise. In general, parents pay less for public school, but the caliber of instruction might be a big concern (Khoso & Alwi, 2022).

Private education in Pakistan offers higher results, better facilities, and smaller class sizes but may perpetuate social inequality due to financial burdens and limited access to wealthy families (Maitlo et al., 2023).

When private education is of a high caliber, it is essential in developing a skilled and competitive labor force. Better chances are given to students, critical thinking is encouraged, and the entire learning process is improved, all of which greatly contribute to the development of human capital (Kalim & Bibi, 2022). Public education is crucial for ensuring access, promoting human capital development, and ensuring equality of opportunity through government programs and changes in the public sector (Maitlo et al., 2023). The government must support public education by ensuring that everyone has access to a high-quality education, even when private education frequently yields greater results. As a result, the workforce of the country will gradually become more skilled and diverse (Nisa et al., 2022).

Figure 2

Distribution of institutions by sector



As per the graph, there are 8.748 million preschoolers, of whom 52% attend public schools (4,532 million), and 48% do so in private institutions (4.212 million). The number of primary-level instructors in public schools is not reported. However, there are 2.785 teachers in private schools.

Gender Disparities in Education

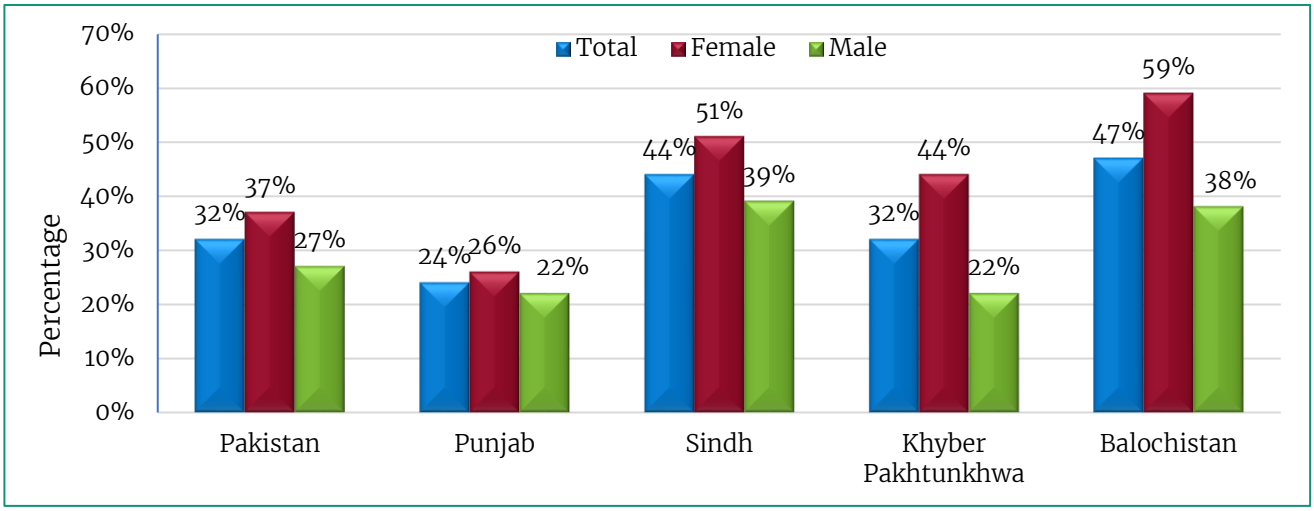
Despite recent improvements, gender inequalities in education still exist in Pakistan. Targeted policy initiatives are required to overcome these gaps since they have a major impact on the development of human capital (Khoso & Alwi, 2022). Particularly in rural regions, girls in Pakistan sometimes enroll at lower rates than boys. Social and cultural norms, early marriage, and safety concerns contribute to gender disparity in education, with female schools potentially lacking quality facilities and qualified teachers (Iqbal et al., 2022). However, the proper utilization of human capital in Pakistan is constrained by gender disparities in schooling. When females are denied access to a good education, a sizable amount of their potential skill is lost to the workforce. This can hinder economic growth and limit female labor force participation (Sultana et al., 2022). Therefore, the Pakistani government is implementing initiatives to support female education, including incentives for families to enroll and maintain daughters in school and public relations efforts emphasizing the value of girls' education. (Iqbal et al., 2022).

To address safety and quality issues, more girls' schools with better infrastructure and female teachers are needed, along with gender-sensitive training initiatives to ensure comfort and protection for female students (Sultana et al., 2022). Also, in Pakistan, there are laws that support gender equality in education, such as the Punjab Free and Compulsory Education Act, which requires free secondary education for girls (Maitlo et al., 2023).

To utilize Pakistan's human capital to its fullest potential, efforts must be made to lessen gender inequities in education. To guarantee that both girls and boys have equal access to high-quality education and, ultimately, contribute to the country's social and economic development, important efforts include policy initiatives, improved infrastructure, and altering social norms (Sultana et al., 2022).

Figure 3

Out-of-school children in Pakistan (province-wise)



According to Figure 2.4, the literacy rate for individuals aged ten and above is 60%, with males having a higher literacy rate than females. Punjab has the highest literacy rate, while Balochistan has the lowest. Youth literacy (ages 15-24) is 72%, with males at 79% and females at 65%. These disparities between provinces and genders persist in youth literacy rates, with females experiencing greater disparities. The adult literacy rate is 57%, with males at 68% and females at 46%, highlighting a literacy gap between adult males and females (Survey, 2022).

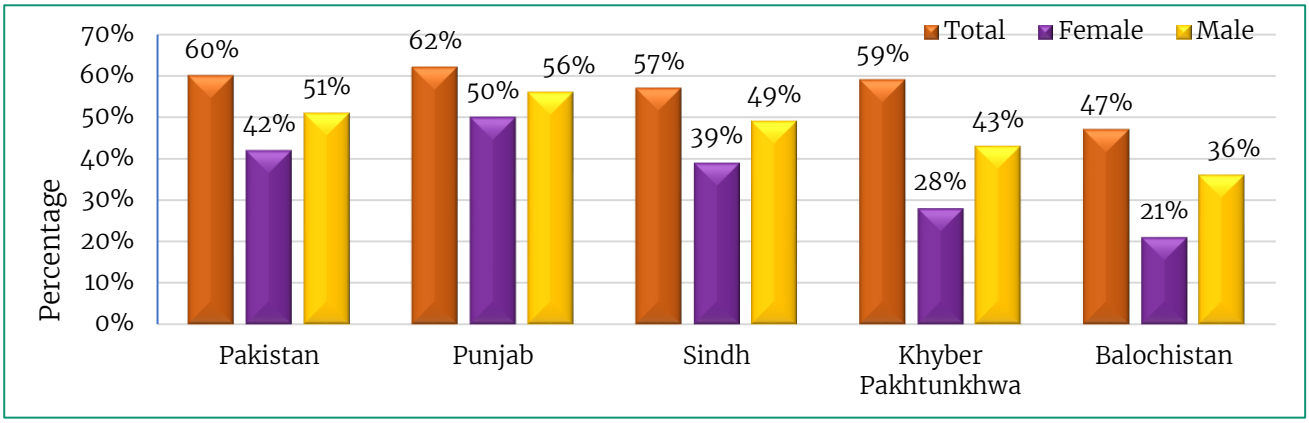
Higher Education in Pakistan

Pakistan's higher education system confronts access issues. Urban areas often host the majority of universities and colleges, especially those offering specialized programs. This geographical gap means that students hailing from rural or remote regions have limited access to top-tier higher education. Access may also be further constrained by admission requirements like stringent merit standards and a shortage of seats (Bano et al., 2022). Moreover, a substantial hurdle for numerous students lies in the expense associated with higher education, covering tuition, textbooks, and living costs. Aspiring students, notably those from lower-income backgrounds, face restrictions in their ability to pursue specialized fields of study because of this financial burden. Although there are financial aid and scholarship options, they might not be sufficient to ease the financial burden (Iqbal et al., 2022).

In addition, the development of human capital is crucially dependent on specialized fields like medicine, engineering, and technology. They create professionals with the abilities and knowledge required to spur innovation and support economic expansion. The development of a varied and talented workforce in various fields is hampered by limited accessibility and affordability, which can affect a nation's capacity to satisfy the needs of the contemporary job market and compete on a global level (Farrukh et al., 2023). To ensure that specialized higher education can effectively contribute to the development of Pakistan's human capital and its competitiveness in specialized fields, it is imperative to make improvements to accessibility and affordability, such as expanding educational institutions in rural areas, increasing scholarship opportunities, and lowering tuition costs (Iqbal et al., 2022).

Figure 5

The proportion of the population completed primary school or higher.



According to the graph, there were 7.1 thousand higher secondary schools with 158.4 thousand instructors during the 2020–21 academic year. 2.32 million Students are now enrolled, up from 2.22 million in 2019–20, a 4.5% rise and 2.53 million are anticipated to be enrolled by 2021–22 (Survey, 2022).

Role of Vocational and Technical Education

The development of human capital is greatly influenced by vocational and technical education, which is essential in creating a trained workforce. These customized educational pathways are created to deliver real-world competencies, knowledge, and practical skills that are perfectly aligned with the needs of the job market (Khilji & Roberts, 2022). Vocational and technical education programs place a strong emphasis on giving students practical knowledge and abilities in a range of trades and vocations. Individuals are prepared to carry out specific job functions thanks to this highly relevant practical training, making them important assets in the workforce (Bano et al., 2022). Similarly, the ever-changing needs of industry are sensitive to vocational and technical education. In the long run, it promotes economic growth by ensuring that the workforce is well-equipped to meet skill gaps in industries like healthcare, manufacturing, information technology, and construction (Forhad et al., 2022).

Vocational and technical education programs reduce unemployment rates by equipping students with employable skills, increasing the labor force, and easing the strain on social welfare systems (Khilji & Roberts, 2022). Also, a workforce with technical and vocational training is typically more productive. These people are ready to assume their positions, which will boost efficiency and effectiveness across a variety of businesses (Forhad et al., 2022).

In conclusion, Vocational and technical education significantly contribute to human capital growth by producing skilled workers, reducing unemployment, meeting industry demands, and fostering a lifelong learning culture (Bano et al., 2022).

Costs and Financing of Education

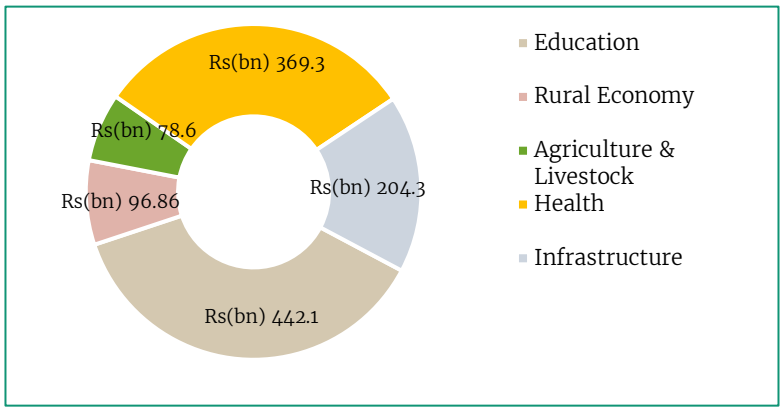
According to previous research, Pakistan's high education costs present a variety of structural and individual issues. Particularly in low-income areas, families are frequently burdened by the costs of tuition, books, and uniforms. Government financing issues, which result in inadequate facilities and teacher preparation, have a systemic negative impact on education quality (Farrukh et al., 2023). However, government budgets, individual contributions, and foreign aid all contribute to funding education in Pakistan. Due to the lack of public funding and the specialized nature of private institutions, there is a gap in the availability and affordability of education. Despite being essential, foreign aid can be unpredictable, which has an impact on long-term planning (Nisa et al., 2022). Additionally, access is restricted by high individual costs, particularly for vulnerable areas. Structural financing shortages have an adverse effect on educational resources, teacher effectiveness, and school infrastructure (Iqbal et al., 2022).

Moreover, foreign aid is essential for funding initiatives like building infrastructure, training teachers, and scholarship programs. However, a large reliance on help might result in dependency, necessitating indigenous solutions that are sustainable (Farrukh et al., 2023). In summary, Pakistan's educational access

and quality are impacted by financial constraints on both an individual and structural level. While foreign aid is helpful, long-term solutions call for effective resource allocation, decreased reliance, and a focus on delivering high-quality, egalitarian education (Iqbal et al., 2022).

Figure 6

Inclusive and participatory budgeting for FY21-22



According to the figure, the Pakistan administration wants to develop a comprehensive budget that everyone can agree on for fiscal year 2022. They have set aside an estimated budget of Rs. 442, Rs. 369, and Rs. 204 billion for education, health, and infrastructure, respectively. Additionally, they have set aside Rs. 79 billion for agriculture and Rs. 97 billion for the rural sector (Research, 2022).

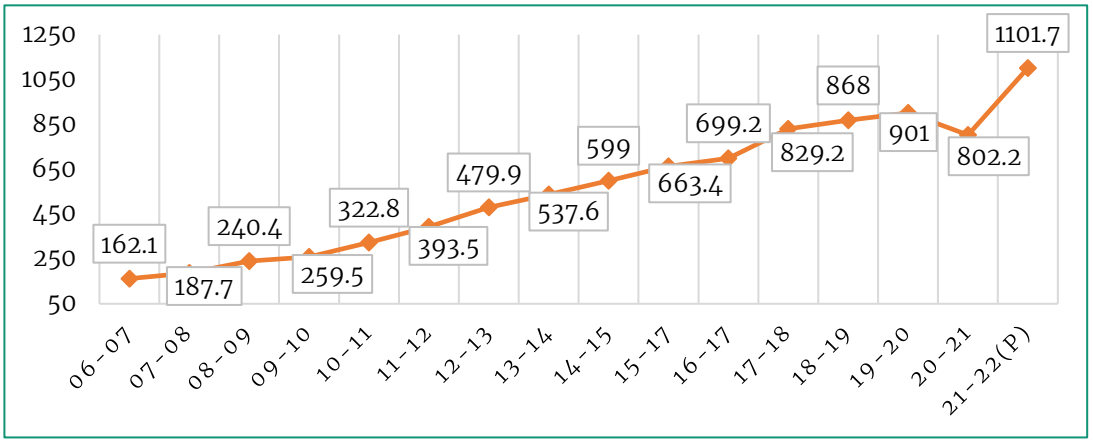
Challenges in Education Financing

There are numerous severe financial challenges facing the Pakistani education industry, which have a substantial impact on the accessibility and quality of education. Firstly, Pakistan's education sector often faces budget constraints due to insufficient funding and limited resources for infrastructure, teacher preparation, and curriculum development (Farrukh et al., 2023). Urban areas often receive more support than rural areas due to budget variations, and rural schools often lack necessary facilities and resources, causing financial constraints and reduced enrollment rates for marginalized individuals limiting access to educational programs (Burney et al., 2022).

Furthermore, inadequate funding has an impact on public school education quality. Lack of funding can result in obsolete texts, overcrowded classrooms, a lack of skilled teachers, and poor facilities. This degrades education as a whole and hinders pupils' learning opportunities (Zubairi et al., 2022). Pakistan's education sector faces financial challenges, affecting accessibility and quality. Addressing these issues requires increased investment, equitable resource distribution, and financial assistance for marginalized areas to improve education quality (Khilji & Roberts, 2022).

Figure 7

Expenditure on education



The Federal Government is committed to investing in education and skill development, allocating Rs 52 billion in the PSDP 2022-23 budget to achieve national learning objectives (Survey, 2022).

Foreign Aid in Pakistan Higher Education

US Government launched a five-year, $19 million program on May 12, 2022, in Islamabad, in partnership with the Pakistani government and with the help of USAID, with the goal of improving Pakistan's higher education system and improving job prospects for university graduates. As they mark 75 years of diplomatic ties, this project highlights the significant relationship between the United States and Pakistan.

Global Partnership for Education (GPE)

Sindh

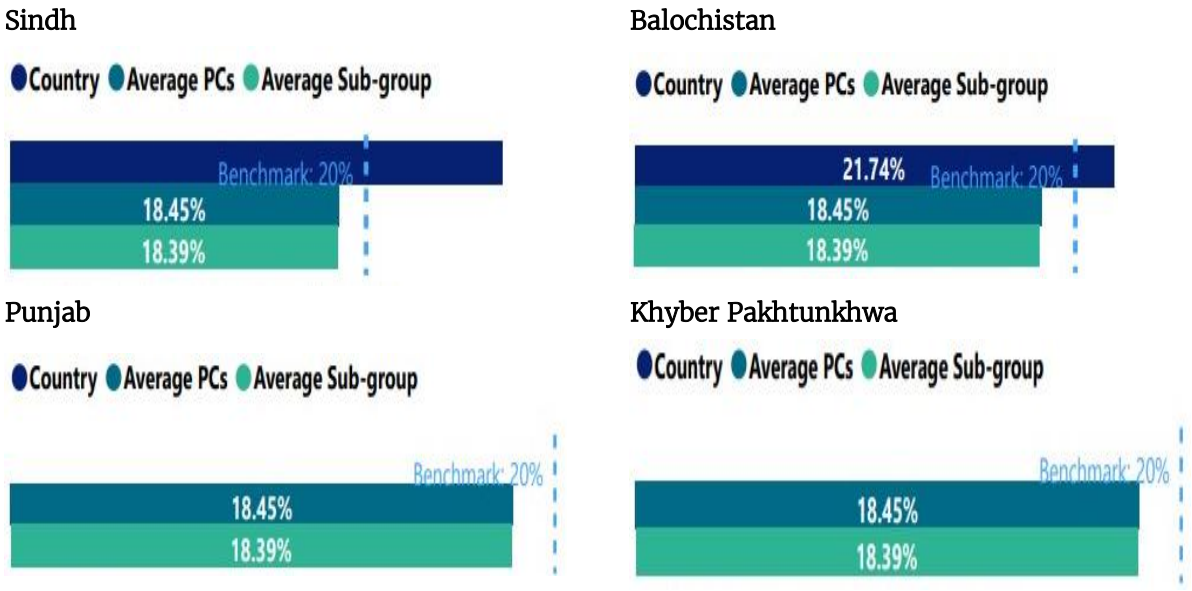
According to Figure 2.8, in Sindh, GPE suggests setting a standard of at least 20% of public spending going toward education. Countries will meet the requirements established by the indicator if they either grow their public spending on education or continuously keep it at or above 20% of the total budget (Grant, 2022).

Balochistan

According to Figure 2.8, in Balochistan, Pakistan, government spending on education climbed from 20.15% in 2020 to 21.74% in 2021 as a percentage of total government spending (excluding debt payment) (Grant, 2022).

Figure 8

Average govt. expenditure on education (% of total expenditure; 2021)



Punjab

According to Figure 2.8, in Pakistan's Punjab region, the government's allocation of funds for education as a percentage of the total government expenditure (excluding debt service) was a 20% benchmark in both 2020 and 2021 (Grant, 2022).

Khyber Pakhtunkhwa

According to Figure 2.8, in Pakistan's KPK region, the government's allocation of funds for education as a percentage of the total government expenditure (excluding debt service) was a 20% benchmark in both 2020 and 2021 (Grant, 2022).

Global Comparisons

Globalization and international standards have a significant impact on Pakistan's educational system and human capital development. The nation's educational endeavors are increasingly being contrasted and measured against those of other nations, which presents both possibilities and difficulties (Kousar et al., 2023). For Pakistan's educational system, globalization has offered both benefits and problems. On the one hand, technology has made it possible for cross-border partnerships and greater access to international educational materials. However, it has also highlighted the shortcomings and discrepancies in Pakistan's educational system (Rind, 2023).

India

The neighboring nation of India is a helpful point of comparison. Both nations, which have sizable populations, struggle with comparable educational issues, including uneven access to high-quality education and the need for more comprehensive teacher preparation. Nevertheless, the country has lately achieved significant strides, particularly in raising enrollment rates and improving the standard of higher education, which may be ascribed to more lavish spending in the field. Massive open online courses (MOOCs), another technological advancement that has benefited education, have also been adopted by this sector (Afzaal et al., 2022).

Malaysia

Malaysia is an additional nation that may be compared to Pakistan for analytical purposes. To guarantee that everyone has access to high-quality education, they have put laws into place with a focus on vocational and technical education. Since Malaysia has used technology in education, it has made a substantial regional contribution to the growth of human capital (Al-Horani et al., 2023).

China

China, which has had phenomenal economic growth, offers still another essential point of comparison. China now ranks first internationally for the percentage of STEM graduates thanks to significant investments in education. China's educational system's emphasis on STEM subjects has been crucial to the nation's economic growth and its position in the world (Raza et al., 2023).

United States

As a center for international education, the United States provides a helpful point of comparison. It has some of the most prestigious institutions in the whole globe as residents, and it provides many different educational options. Worldwide enrollment at American universities results in a workforce that is both highly competent and varied (Mouronte-López et al., 2023).

Turkey

Turkey offers yet another point for comparison in the analysis. The nation has dramatically extended its higher education system and promoted cross-national cooperation in this area. The efforts made by Turkey to entice students from nearby nations, like Pakistan, underline the significance of international education exchange programs and partnerships for the growth of human capital (Bourn et al., 2023).

Digital Learning and Human Capital Development

Skills Development and Labor Market Outcomes

According to Abbass et al. (2022), a critical factor in Pakistan's development of human capital is digital learning. Digital education significantly impacts labor market outcomes, employment prospects, and income levels by enhancing technical competence, marketability, and employability in areas like programming, digital marketing, and data analysis (Iqbal et al., 2022). Additionally, businesses frequently favor workers with digital abilities, which results in more career prospects. Digital technology literacy is becoming a prerequisite for many businesses, and those who possess it find their job chances rising as a result of increased demand (Farrukh et al., 2023).

In addition, Digital skills enable access to higher-paying occupations like IT, e-commerce, and digital communication, increasing income levels and enhancing financial security for individuals proficient in digital tools and technology.(Abbass et al., 2022). In conclusion, digital learning improves Pakistani human capital by transferring valuable skills, boosting employability, extending work options, and raising income levels. To succeed in the modern labor market and efficiently contribute to the economic prosperity of the country, individuals must embrace digital education (Iqbal et al., 2022).

Digital Divide and Accessibility

In terms of developing human capital, Pakistan's digital divide poses a severe obstacle. The workforce and the country's economic development is significantly impacted by disparities in access to digital resources, gadgets, and internet connectivity. Several individuals have limited access to digital devices like computers and cell phones, especially in rural and economically underprivileged areas (Khan et al., 2023). Additionally, The digital divide hinders human capital development by limiting access to online resources, limiting skills, and limiting employment opportunities in technology-driven industries for those without sufficient digital resources (Mathrani et al., 2022).
However, the digital divide worsens economic inequality, causing individuals to slip behind. Closing this gap requires increased technology access, digital infrastructure investments, and digital literacy programs for all demographics (Khan et al., 2023).

Digital Literacy and Skills Development

The development of digital literacy and other fundamental skills necessary for Pakistan's modern workforce is greatly aided by digital learning. Individuals may learn how to use various software, tools, and digital communication methods through digital platforms and online courses. Their digital literacy is improved as a result of this exposure, enhancing their ability to successfully traverse the digital world (Mathrani et al., 2022). Additionally, technical abilities like programming, graphic design, data analysis, and digital marketing are developed through digital learning. Today's work market has a massive demand for these talents, particularly in industries that rely heavily on technology. The practical application of theoretical information in real-world contexts helps students develop their problem-solving and critical-thinking skills. Digital courses frequently include hands-on experience and real-life projects (Khan et al., 2023).

In addition, because online courses sometimes demand self-paced learning and active engagement in online conversations and group projects, digital learning promotes soft skills like time management, self-discipline, and effective communication. These abilities are essential in any professional context and have a significant impact on productivity and teamwork at work (Sumra et al., 2022). Digital learning also promotes an attitude of continual learning, which is essential in the current fast-paced digital environment. People may stay current in their industries and be prepared to face the demands of a work market that is continuously changing by periodically upgrading their abilities through online courses. Overall, digital learning gives Pakistan's workers the variety of skills they need to succeed in today's technology-driven workplace (Sumra et al., 2022).

Government Initiatives and Policies

Khan et al. (2023) indicated that government programs and initiatives focused on digital learning have risen to prominence in Pakistan, showing the country's understanding of the value of technology in education. To encourage digital learning and advance the nation's technical infrastructure, the government has implemented a number of essential programs. Therefore, one prominent endeavor is the launch of the *Kamyab Jawan* Program of the prime minister, which includes provisions for skill development through digital education. To equip students with modern skills and increase their employability in the digital era, this initiative makes a variety of online training modules and courses available (Sumra et al., 2022). Additionally, digital literacy and education are emphasized by the Digital Pakistan Initiative, which was established to convert Pakistan into a knowledge-based economy. The project intends to provide an internet connection to underdeveloped regions so that everyone in the nation can benefit from digital

education. Investments have been made to improve the technological infrastructure, including the development of e-classrooms, e-libraries, and high-speed internet services (Mathrani et al., 2022).

Also, collaborations with multinational organizations and IT firms have also proven crucial. Partnerships with groups like UNICEF and UNESCO, for instance, have made it easier to build digital learning platforms and content, increasing the range of educational materials available to Pakistani students (Khan et al., 2023). However, these regulations and expenditures demonstrate Pakistan's dedication to using digital learning to increase educational accessibility, boost skills, and get its workforce ready for the challenges of the digital age (Haseeb et al., 2023).

Teacher Training and Capacity Building

The successful application of digital learning methodologies in Pakistan depends on the ongoing professional development and teacher training of educators. They provide teachers with the fundamental know-how and abilities required to make effective use of technology (Khalil et al., 2023). These training courses prioritize teaching educators digital literacy skills so they are adept at using a variety of digital tools and platforms. This enables students to successfully traverse the digital environment and utilize the tools that are accessible. A shift in pedagogy is also emphasized throughout teacher training. It inspires educators to forgo tried-and-true methods of education in favor of cutting-edge techniques that leverage technology to provide engaging and hands-on learning experiences (Habes et al., 2022). Additionally, teacher training programs place a strong emphasis on content creation and curation. This is especially crucial in places with insufficient access to excellent online learning resources (Sumra et al., 2022).

In addition, teachers receive training in digital tool assessment methods. This enables them to efficiently track students' progress and promptly give comments, boosting the learning process or emphasizing ongoing professional growth. It makes sure that teachers keep up to date on the most recent developments in digital learning, enabling them to adjust to the constantly changing educational scene (Habes et al., 2022). To sum up, in order to fully realize the promise of digital learning in Pakistan, teacher training and professional development are essential. They enable teachers to successfully employ technology, enhancing instruction overall and preparing pupils for the digital age (Khan et al., 2023).

Conclusion and Recommendations

Conclusion

The goal of the research is to understand more about how digital learning might improve human capital development within the framework of Pakistan's educational system, mainly how it affects employability, skills, and economic growth. According to the literature assessment, finance, resource distribution, and policy execution are all complex issues in Pakistan's educational economy. The quality of education varies depending on the amount of financing available as well as how resources are distributed between urban and rural locations. Bureaucratic roadblocks and restricted data accessibility further hamper evidence-based policymaking. Despite these challenges, there have recently been measures to improve educational finance, particularly in the context of digital learning initiatives. To improve Pakistan's educational system, fundamental changes that deal with financial shortages and guarantee fair resource distribution are essential.

Additionally, human capital has also increased as a result of curriculum, teaching quality, and infrastructure improvements in Pakistan's educational system. Investments in curriculum changes and teacher training programs have raised the standard of education. To match educational outputs with the needs of the labor market, programs for vocational and technical education have also been established. However, issues like inadequate access to excellent education and obsolete teaching techniques continue. The modernization of curricula, continued teacher training, and equal access to educational resources are all necessary to create human capital further.

Furthermore, in Pakistan, digital learning has become a crucial driver of the growth of human capital. The research emphasizes its potential to address educational gaps, particularly in distant locations, and to improve digital age skills. Online platforms and interactive learning resources have made education more

flexible and accessible, which has helped the growth of a more skilled labor force. Challenges include the digital gap and the requirement for teacher training in digital pedagogy, which continue despite its promise. Policies should concentrate on enhancing internet connectivity, offering training in digital literacy, and successfully integrating technology into the curriculum in order to optimize the impact of digital learning.

Despite the difficulties facing Pakistan's educational system, concentrated initiatives to increase financing, expand curricula, and integrate technology might pave the path for significant improvements in the growth of human capital. To develop a talented, intelligent, and flexible workforce necessary for the nation's social and economic success, it is imperative to tackle these issues jointly and strategically.

Policy Recommendations

The economics of education are changing, and this has significant ramifications for Pakistan's efforts to enhance its human capital. The government should take into account the following policy recommendations to enhance the nation's workforce and encourage economic growth. Initially, the government has to accept the expanding trend of online education. Invest in the construction of high-speed internet infrastructure. Give students access to digital gadgets. Because of this, even in remote areas, everyone will have access to a high-quality education. In order to expand digital learning initiatives, authorities should promote public-private collaborations. Similar to this, support for vocational and technical education is necessary to keep up with the demands of a labor market that is continually evolving. Courses in industries like IT, healthcare, and renewable energy should provide students with practical training. A curriculum that is tailored to the needs of businesses may be created with the help of industry collaboration.

Furthermore, flexible learning routes that let people achieve skills and credentials at their speed should be put in place by policymakers. This allows for the enrollment of non-traditional students, such as adult learners and part-time employees. Recognition of earlier learning and micro-credentials can be essential elements.

In addition, Policymakers ought to promote collaborations between civil society, business, and the governmental sector. Participation from the private sector may aid in filling resource shortfalls, funding scholarship programs, and facilitating internships. The level of education may be raised by utilizing the private sector's knowledge and resources. Authorities should prioritize thorough teacher preparation programs that cover pedagogical adaptability as well as digital literacy. Teachers must have access to continual professional development opportunities to keep them up to date on the most recent teaching methods and technological advancements. Increase the cost and accessibility of higher education as well. Especially for students from low-income homes, funding for scholarships and financial aid should be enhanced. Policies should encourage institutions to provide online courses so that a wider audience may attend higher education.

Furthermore, to guarantee that educational institutions uphold high standards, policymakers should put in place reliable quality assurance procedures. The quality of education may be improved by regular evaluations, accrediting processes, and benchmarking to worldwide educational norms. Also, enhance the curriculum with entrepreneurship and innovation education. By doing this, educators may better prepare students to start their own companies, spur economic growth, and advance gender inclusion in the classroom. Develop policies that promote female enrollment, a secure and encouraging learning environment, and the eradication of gender inequalities. To utilize the human resources of the country to its fullest potential, an inclusive strategy is necessary.

Further, policymakers should establish an effective system for tracking and evaluating the results of educational initiatives. In a similar spirit, routine reviews might help policymakers determine what is effective and what needs to be improved, ensuring that financial expenditures in education get the desired results. However, by putting these suggestions into action, Pakistan's workforce would be better prepared to meet the demands of the quickly-changing global economy and progress the nation's future economic prosperity.

Limitations and Future Research

The research highlights Pakistan's challenges in accessing education-related data, which hinders policy development. Future studies should assess the impact of digital learning and vocational education on labor force skills, employment prospects, and economic growth. Financial constraints and inadequate infrastructure hinder the implementation of effective education policies. In-depth cost-effectiveness evaluations are crucial for resource allocation. The bureaucratic structure also contributes to inefficiencies and complexity in policy execution.

Future research should focus on successful implementation techniques for educational policy, especially in the face of logistical challenges, opposition, and collaboration issues, to improve efficiency and effectiveness.

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