Sustainable Pathways to Quality: Exploring SDG 4's Influence on Higher Education Transformation in Pakistan

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Abstract:

This study aims to explore the practice of continuing education in higher education institutions in Pakistan, focusing on implementing the Sustainable Development Goal (SDG) 4. Using a qualitative approach and case study methods, data were collected through in-depth interviews with department heads, lecturers, and students and analysis of curriculum documents from four public universities in Lahore. The results show a significant gap between the existing curriculum content and the actual needs in the job market, where many curricula still need to be focused on theoretical knowledge with adequate attention to the development of practical skills necessary to face the challenges of the professional world. This research identifies the need for curriculum updates, lecturer training, and improvement of educational facilities to build graduates who are better prepared to face global demands. The implications of these findings emphasize that reforms in higher education are urgently needed to ensure that the curriculum offered is relevant and, by the demands of the industry, to create quality and highly competitive human resources in the global market.

Keywords: *Continuing Education, SDG 4, Higher Education Curriculum*

Abstrak:

Penelitian ini bertujuan untuk mengeksplorasi praktik pendidikan berkelanjutan di institusi pendidikan tinggi di Pakistan, dengan fokus pada implementasi Tujuan Pembangunan Berkelanjutan (SDG) 4. Menggunakan pendekatan kualitatif dan metode studi kasus, data dikumpulkan melalui wawancara mendalam dengan kepala departemen, dosen, dan mahasiswa, serta analisis dokumen kurikulum dari empat universitas negeri di Lahore. Hasil penelitian menunjukkan adanya kesenjangan signifikan antara konten kurikulum yang ada dan kebutuhan aktual di pasar kerja, di mana banyak kurikulum masih terfokus pada pengetahuan teoritis tanpa perhatian yang adekuat terhadap pengembangan keterampilan praktis diperlukan untuk menghadapi tantangan di dunia profesional. Penelitian ini mengidentifikasi perlunya pembaruan kurikulum, pelatihan dosen, serta peningkatan fasilitas pendidikan untuk membangun lulusan yang lebih siap menghadapi tuntutan global. Implikasi dari temuan ini menekankan bahwa reformasi di bidang pendidikan tinggi sangat diperlukan untuk memastikan bahwa kurikulum yang ditawarkan relevan dan sesuai dengan tuntutan industri, sehingga dapat menciptakan sumber daya manusia yang berkualitas dan berdaya saing tinggi di pasar global.

Kata Kunci: *Pendidikan Berkelanjutan, SDG 4, Kurikulum Pendidikan Tinggi*

INTRODUCTION

Higher education in Pakistan is an essential aspect of efforts to achieve sustainable development goals (Habib et al., 2021; Nazar et al., 2022; Saqib et al., 2020), especially in realizing SDG 4, which emphasizes the provision of quality education for all (Beeharry, 2021; Do et al., 2020; González García et al., 2020). SDG 4 refers to "Sustainable Development Goal 4" set by the United Nations (UN) in the 2030 Agenda for Sustainable Development (Molina et al., 2023; Crawford & Cifuentes-Faura, 2022; Rad et al., 2022). However, there is a high unemployment rate among educated graduates (Ahmad et al., 2023; Hamza et al., 2021; Tanveer et al., 2022). The relevance of the higher education curriculum is becoming increasingly urgent (Almazova et al., 2020; Blankenberger & Williams, 2020; Coman et al., 2020). Many educational programs are still stuck in traditional approaches that emphasize theoretical knowledge without providing opportunities for practical skills development (Almazova et al., 2020; Butt et al., 2020; Taraldsen et al., 2022). This phenomenon shows a significant gap between what is taught and the real needs in the job market (Ghobakhloo et al., 2022; Szabó-Szentgróti et al., 2021; Szromek & Wolniak, 2020). Therefore, this study focuses on how higher education institutions in Pakistan can adapt to the demands of the times through curriculum updates, as well as utilizing a more contextual approach based on the critical education theory initiated by Paulo Freire, which emphasizes relevant and empowering learning (Razzak, 2020; Cappiali, 2023; Rubyutsa et al., 2024).

The observation activities found that the curriculum in many universities in Lahore often needs to meet international standards and is less relevant to the latest developments in the discipline. Interviews with department heads show substantial concerns about the dominance of theoretical content that needs to include developing practical skills necessary for the world of work. In addition, the minimal budget for curriculum updates and inadequate facilities further exacerbate the situation, making students unprepared to enter the job market. This problem must be understood as a challenge that requires serious attention from various stakeholders in education so that graduates can have the expected capabilities amid fierce global competition.

Several previous studies have shown the importance of reform in higher education to meet the demands of social and economic development. One study by Abulibdeh et al. (2024) emphasizes the importance of integrating sustainable development principles in the higher education curriculum to produce graduates who are more prepared and responsive to the needs of the industry. Another study by Mian et al. (2020) indicates that many educational institutions in Pakistan still need to adapt teaching methods and policies that suit the job market's needs. In addition, recent research by Oke and Fernandes (2020) highlights the need for innovation in teaching and technology to increase the effectiveness and relevance of education. However, although these studies cover a wide range of challenges, there is a clear gap regarding exploring the integration of practical skills in existing

curricula, which has yet to be studied in depth.

The gap between this study and previous studies is the focus on concrete efforts to integrate practical skills into the higher education curriculum. Many previous studies have focused more on general challenges in education but have yet to specifically investigate how curricula can be updated to improve graduate readiness. This research aims to fill this gap by offering practical solutions that can be implemented and emphasizing the importance of synergy between education and industry needs. By identifying and resolving existing issues, this research is expected to make a significant and original contribution to the scientific literature and become a reference for developing better education policies.

The novelty of this study lies in the methodology used, namely a qualitative approach through in-depth interviews and analysis of curriculum documents. In addition, this study explores weaknesses in the existing curriculum and seeks practical solutions to improve the quality of education. With a focus on integrating practical skills and elements of sustainable development, the research offers new perspectives that are relevant and implementable in higher education. This novelty is expected to provide a clear added value in developing effective curriculum and teaching practices, which has yet to be widely discussed in previous research.

This study aims to explore the practice of continuing education in higher education institutions in Pakistan, focusing on implementing the Sustainable Development Goal (SDG) 4. It is hoped that this research can positively impact the development of education policies that support graduate readiness and ensure that higher education in Pakistan is in line with the principles of sustainable development and prepares quality human resources for the future.

RESEARCH METHOD

This study uses qualitative research with a case study approach to explore the practice of continuing education in higher education institutions in Pakistan. The qualitative approach was chosen because this study explores the challenges and opportunities institutions face in implementing the sustainable development goals in SDG 4 (Hayat et al., 2021; Leo et al., 2021; Matee et al., 2023). Compared to a more structured quantitative approach focusing on statistical measurements, qualitative approaches provide greater flexibility to understand the nuances and complexities of the studied phenomena. Through in-depth interviews with department heads, lecturers, and students and analysis of curriculum documents, the study seeks to uncover deeper contextual details that cannot be uncovered through more formal methods such as surveys.

The data were collected at four public universities in Lahore and selected for relevance to the research objectives. Data collection was carried out through purposive sampling, which ensured respondents' participation with diverse perspectives related to educational practices and challenges faced by institutions. The respondents in this study consisted of four department heads, 160 students, and 16 lecturers. The table below shows the distribution of participants by stakeholder group.

Table 1. Sample Distribution		
Stakeholder Group	Number of Participants	Institutions Represented
Heads of Department	4	4 Public Universities in Lahore
Students	160	4 Public Universities in Lahore
Faculty Members	16	4 Public Universities in Lahore

The selection of the head of the department as the primary resource person aims to obtain in-depth information from the leaders of the institution who are directly involved in the development of the curriculum and the implementation of educational policies. At the same time, students and lecturers provide a comprehensive perspective on implementing these policies in daily practice. With the number of respondents, this study is expected to produce valuable insights into the implementation of SDG 4.

In the data analysis process, this study adopts data analysis techniques developed by Miles and Huberman (Frazer et al., 2023; Mezmir, 2020; Riazi et al., 2023), which includes three stages: data reduction, data presentation, and conclusion drawn. In the data reduction stage, researchers compile, summarize, and organize the interview data obtained to weed out irrelevant information so that the focus remains on the central issues related to continuing education. At the data presentation stage, the information selection results are grouped in tables, graphs, or narratives to provide a clear and organized picture of the research findings. Finally, at the conclusion drawing stage, the researcher interpreted the data presented to identify the main themes and draw essential insights regarding the implementation of SDG 4 in higher education institutions in Pakistan. This study has provided an in-depth understanding of sustainable quality education practices in higher education through this approach.

RESULT AND DISCUSSION
Result

This study explores how higher education institutions in Pakistan strive to implement Sustainable Development Goal (SDG) 4 to provide quality education. It uses a qualitative approach, conducting in-depth interviews and analyzing curriculum documents to evaluate the extent to which SDG 4 principles have been integrated into educational practices in public universities in Lahore.

Limitations of the Graduate Curriculum and the Need for Renewal

An analysis of curriculum documents from postgraduate programs at universities in Lahore shows that many curricula still need to be in line with international standards. This results in difficulties for higher education institutions in creating competent graduates relevant to the needs of the modern world of work. One department head stated, "Our curriculum is still very focused on theory and very little focus on developing the practical skills necessary for today's world of work" (Interview_ D).

The statement points to significant concerns regarding the current curriculum structure, which emphasizes that the curriculum relies heavily on theoretical knowledge while ignoring the practical skills required for the contemporary job market. This highlights the gap between academic preparation

and industry needs, suggesting that graduates may need to be better prepared to meet the demands of employers. The emphasis on theory over practice can hinder students' ability to apply their knowledge effectively in real-world situations, potentially affecting their competitiveness and readiness for professional roles. This indicates the need for a curriculum review to include more hands-on experience and skills development that is appropriate to the needs of the current workforce.

In addition, the head of another department added, "A lot of the content in the curriculum is outdated and does not reflect the latest developments in the field of study" (Interview_F). The statement shows concerns about the relevance of the existing curriculum, where much of the content is outdated and does not reflect the latest developments in the field of study. As a result, college students can lose critical understanding and relevant skills, hindering their competitiveness in the job market. Therefore, it is essential for institutions to regularly update their curriculum to keep pace with advances in the field.

Another head of the department commented, "We need more funding to be allocated to integrate modern technology and teaching methods in our curriculum" (Interview_S). The results of the interview above explain the importance of additional financing to enable curriculum updates that include the latest educational technologies and innovative teaching methods.

The results of observations show that many classrooms are still equipped with minimal facilities such as whiteboards and simple projectors, which makes technology-based teaching difficult. The lack of these facilities indicates a significant gap between academic needs and available facilities, as shown in Figure 1.
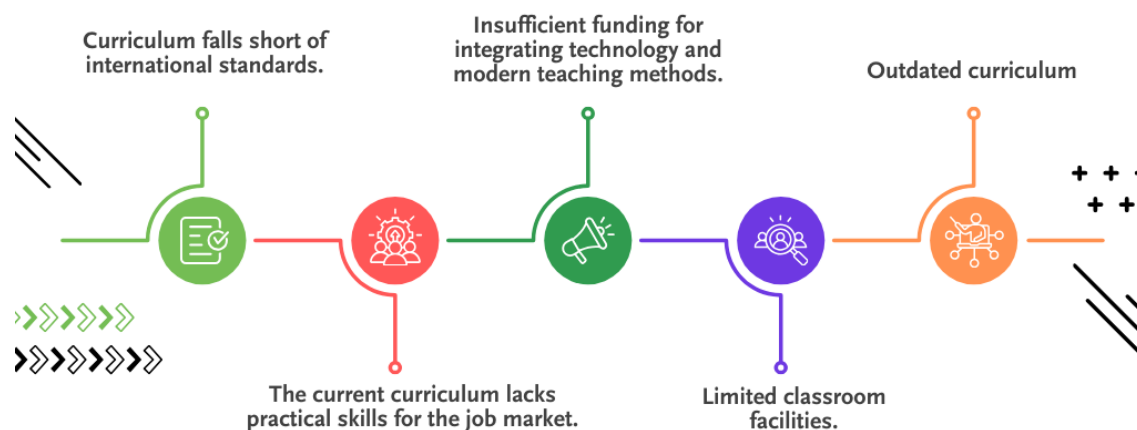

Figure 1. Limitations of the Graduate Curriculum and the Need for Renewal

Limitations of Teaching Methods and Technology Resources

Interviews with lecturers revealed other obstacles to providing quality education besides outdated teaching methods and limited technological resources. One lecturer stated, "Many of us have not received adequate training to use technology in teaching, so we are limited in our ability to teach effectively" (Interview_L).

The interview results with one of the lecturers above indicated that the lack of technology training affected the quality of teaching, making the lecturers unoptimistic in utilizing technology to improve the learning process. Another lecturer added, "Often, technological facilities such as computers and software on our campus are inadequate to support digital learning" (Interview_L). This limitation shows the lack of digital devices in modern learning.

In addition, one lecturer mentioned, "We even encountered problems with a foundation such as stable electricity, which hindered the application of technology-based teaching" (Interview_S). This shows that fundamental infrastructure problems, such as unstable electricity, hinder technology implementation in teaching. The following table illustrates interview coding related to teaching methods and technology resources:

Table 2. Coding Interviews Related to Teaching Methods and Technology Resources

Theme: Limitations in Teaching Methods and Technological Resources			
Question	Interview Sentences	Coding	Category
What is the condition of technological facilities?	"Often, technological infrastructure such as computers and software on our campus is inadequate to support digital learning."	"Inadequate technological infrastructure"	Infrastructure Limitations
What are the obstacles to the use of technology?	"We even have problems with the basics, such as stable electricity, which hinders the implementation of technology-based teaching."	"Unstable power issue"	Basic Infrastructure
How is technology training for lecturers?	"Many of us have not received adequate training to use technology in teaching, so we are limited in our ability to teach effectively."	"Technology training for lecturers is inadequate."	Lack of Training

Observations in the classroom show that many classrooms need to be equipped with adequate technological facilities such as computers, projectors, or stable internet access. This condition hinders the interactive and technology-based teaching process, so students are less exposed to dynamic learning experiences relevant to the digital era.

Integration of Quality Education and Sustainable Development

The findings show that most graduate programs must focus adequately on quality education and sustainable development. A department head explained, "There are not many courses that integrate the concept of sustainable development in our curriculum" (Interview_E).

The interviews' results show a need for more attention to teaching the principles of sustainable development and encouraging students' understanding of relevant global issues. The head of another department added, "We know this is important, but we do not yet know how best to integrate it into our study program" (Interview_D).

A lecturer also opined, "The lack of emphasis on sustainable quality education makes our graduates less prepared to face real-world challenges" (Interview_L). This shows that graduates must gain the necessary skills and knowledge to contribute to sustainable development.

Observations in various programs show a need for teaching materials and courses focused on sustainable development and quality education. Only a few materials address global and local issues relevant to SDG 4, pointing to the need for deeper integration in the curriculum. The table below illustrates the thematic coding of "integration of quality education and sustainable development":

Table 3. The Integration of Quality Education and Sustainable Development

Theme: Integration of Quality Education and Sustainable Development			
Question	Interview Sentences	Coding	Category
How is the integration of sustainable development into the curriculum?	"Not many courses integrate the concept of sustainable development in our curriculum."	"Lack of integration of the concept of sustainable development"	Lack of SDGs Content
What is the lecturer's knowledge in integrating sustainable development?	"We know this is important, but we do not yet know how best to integrate it into our curriculum."	"Confusion in integration"	Disadvantages of Curriculum Guidelines
How are graduates ready to face challenges?	"The lack of emphasis on sustainable, quality education makes our graduates less prepared to face real-world challenges."	"Graduates are not prepared for the challenges of the world of work."	Student Readiness

This study highlights the challenges public universities face in Lahore implementing SDG 4. The urgent need for curriculum updates, technology training for lecturers, and the integration of sustainable development principles are some areas that need special attention. A summary groups the different aspects identified in this study to provide a clearer picture of the study's findings. The table below summarizes the research areas, key themes, and the expected outcomes of curriculum development, teaching methods, and educational challenges in the institutions studied.

Table 4. Summary of Key Findings and Recommendations

Areas of Study	Main Themes	Outcomes
Postgraduate Program Curriculum	Outdated Standards; Insufficient Content; Rigid Structure; Lack of Resources; Limited Use of Technology	Update the curriculum to meet International Standards, enhance content, and invest necessary resources and technology.
In-Depth Interview Analysis	Teaching methods need to be aligned with current trends; there needs to be more technology and resources.	Review and modernize teaching methods, incorporating technology and improving resource availability.
Master's Program Syllabus Examination	Insufficient focus on Quality Education and Sustainable Development; Neglect of vital thematic areas	Revise syllabi to prioritize quality education, Sustainable Development, and essential thematic areas.
		Invest in Infrastructure,

Quality Education Challenges	Lack of Infrastructure, Insufficient Funding, Untrained Faculty	Increase Funding, and provide Faculty Training to improve Education Quality and Sustainability.

Table 4 shows the findings related to the postgraduate curriculum, teaching methods, and challenges in the quality of education in the institutions studied. The current curriculum is experiencing various shortcomings, including outdated standards, insufficient content, and lack of technology, all indicating the need for updates to meet international standards and provide relevant materials. In addition, the analysis of interviews shows that existing teaching methods need to align with current trends, and there needs to be more adequate resources, which drives the need for modernization in teaching approaches. The results of the postgraduate curriculum examination show an inadequate focus on quality education and sustainable development. At the same time, other challenges include weak infrastructure, inadequate financing, and lack of training for faculty. Overall, this table illustrates the urgent need for reforms in various aspects of education to improve the quality and relevance of education in the future.

Discussion

The results of this study show that universities in Lahore, Pakistan, face several significant challenges in implementing Sustainable Development Goal (SDG) 4 on quality education. One of the main findings is that the curriculum in graduate programs still prioritizes theory over the development of practical skills needed in the world of work. This aligns with a study conducted by Bano et al. (2022), which noted that higher education in Pakistan tends to focus on theoretical learning and needs more practical experience relevant to industry demands. This imbalance impacts the readiness of graduates to face the challenges of the professional world, which indicates the need for curriculum adjustments to support the development of practical skills.

The limitations of technological infrastructure are also the main obstacle to implementing quality education. The findings of this study stated that many universities in Lahore need more technological facilities, and lecturers often need more training to utilize technology in the teaching and learning process. This condition aligns with research conducted by Ismail et al. (2020), which found that adopting educational technology in many universities in developing countries, including Pakistan, needs more adequate facilities and human resources. The inability of lecturers to integrate technology into teaching has the potential to reduce the effectiveness of education, which should be a significant concern in improving the quality of learning.

The integration of sustainable development principles in the curriculum still needs to be improved. Many study programs at universities in Lahore have yet to adopt materials related to SDG 4, resulting in students needing more understanding of pressing global issues. These findings are similar to the findings of Glavič. (2020), which shows that although education for sustainable development has become a priority in international education policy, many South Asian universities have not successfully integrated these principles into their

curricula. The lack of understanding of how to integrate this concept of sustainable development becomes a significant challenge in achieving it, reflecting the need for deeper curriculum reforms.

Funding issues are also an important factor exacerbating this challenge. Many universities in Lahore need help providing the necessary facilities to improve the quality of education, such as educational technology and lecturer training. These findings corroborate research conducted by Agu et al. (2021), who noted that budget constraints are one of the biggest obstacles to developing higher education in developing countries. Therefore, education policy in Pakistan must prioritize allocating funds to update educational infrastructure and support better teaching capacity development.

Thus, this study provides a clearer picture of the challenges faced by universities in Lahore in implementing SDG 4. The results of this study confirm the need for curriculum updates that are more relevant to the needs of the world of work, as well as a deeper integration of sustainable development principles in higher education. Improving infrastructure and technology training for lecturers is also the key to creating a higher quality education and being ready to face global challenges.

The findings of this study make a significant contribution both practically and theoretically to the development of higher education in Pakistan. The results of the study show the need for curriculum updates that are more relevant to industry needs and ensure the integration of practical skills in teaching so that graduates can be better prepared to face the world of work challenges. It also encourages the provision of continuous training for lecturers as well as the improvement of infrastructure and educational resources. Theoretically, this research emphasizes the importance of a critical educational framework and a holistic approach to creating an empowering learning environment while integrating the principles of sustainable development into higher education, which aligns with the views of experts such as Paulo Freire. These findings serve as a basis for policymakers and stakeholders to plan more effective strategies for improving the quality of higher education and developing a curriculum responsive to social and economic changes.

CONCLUSION

The conclusion of this study highlights significant findings regarding the challenges faced by higher education institutions in Pakistan in implementing Sustainable Development Goal (SDG) 4. One of the critical lessons that can be taken is the need for a curriculum that is more responsive to the changing needs of the workforce and greater attention to developing practical skills. These findings provide new insights into how there is a gap between the theoretical knowledge taught and the practical skills needed while emphasizing the urgency to make curriculum reform and teaching training a priority in efforts to improve the quality of education. As such, the study offers guidance for academics, policymakers, and education stakeholders to create graduates who are better prepared and able to compete in the global marketplace.

On the other hand, this study contributes significantly to the higher education literature by updating existing perspectives and showing an urgent

need for improvement in educational practices. This research not only identifies existing problems but also proposes practical steps that can be taken to overcome these challenges, as well as explaining their relevance to critical education and sustainable development theories. Although this study made a valuable contribution, there were limitations in the scope of the study, which only focused on several universities in Lahore, thus excluding other variables such as gender and age that also had an effect. For this reason, further research is needed to explore aspects that still need to be reached, such as broader methodologies and demographic variability, to obtain a more comprehensive picture that can be used as a basis for more effective and comprehensive education policies.

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