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EXPLORING EDUCATIONAL STRATEGIES AND CHALLENGES: A COMPREHENSIVE REVIEW OF SKILL-BASED EDUCATION AND ENVIRONMENTAL POLICIES IN SOUTH ASIA

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Abstract

The topic of skilling meets environmental policy making in South Asia and these two arenas are perhaps a little too obvious; therefore, this one study we do where the domains converge. Home to over a billion people, South Asia is one of the world's most interesting regions in terms of both its high biodiversity and increased upcoming challenges as rapid urbanization, population growth and intensifying climate change are further removing children from nature. The demand for a skilled workforce is increasing, yet educational systems in countries like Pakistan in India continue to fail at turning out workers with the right skills that industry's needs. Insufficient integration into the educational system, coupled with a crisis of practical skills, has precluded the development of the region. Summarizing the current evidence on educational approaches and environmental policies to enabling futures thinking, this review article targets areas in which teacher training, infrastructure and policy synergy need to be directed. It further highlights the need for long-term solutions that link capacity building to sustainability, in particular by mainstreaming environmental education into national curriculums. The results indicate that, although it is good news in both aspects, the lack of coherence between educational and environmental policies as well as difficulties in technological access and gender inequality still make their effectiveness small. Finally, the paper offers recommendations to enhance quality education at all levels and for different segments of the population; provide adequate teacher professional development opportunities; and guarantee skill-based education as well as environmental education for girls and women. Offering solutions address South Asian development priorities with future readiness on global demands by aligning educational strategies with sustainability goals.

Keywords: Environmental Education, Skill-Based Education, Strategies and Challenges, Technology, Gender differences

Introduction

South Asia, the abode of over a billion people is facing an array of grave challenges on both textual and environ; mental fronts (Pandey & Asif, 2022). Rapid population expansion, urbanization and the ever-worsening consequences of climate change exacerbate these challenges which negatively influence educational systems in meeting the ever changing needs of the region (Sajjad et al., 2022). South Asia is home to more than 1.8 billion people, bringing both an opportunity and a challenge in striving for equitable access

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to quality education for all amid this broad diversity of the population living here. Most college graduates are unemployable, since the region's education systems can't offer skills-based training to suit the demands of a contemporary job market; causing high rates of youth unemployment and underemployment in some of the largest countries such as Pakistan and India. Meanwhile, environmental problems in the region, especially pollution, waste and climate resilience are getting worse and jeopardizing the health of hundreds of millions, particularly within our ever-expanding cities.

Skill Education is still under development in countries like Pakistan and India. These countries are suffering from a large mismatch of required skills by industries and the skills imparted from education systems to be industry ready (Khan, 2023). Therefore, education reforms are needed to prepare and provide practical knowledge to the youth for imparting employability and enhancing economic output. This divide between the purpose of teaching and the requirements of industries is largely an issue given today's fast-shifting global economic networks that require a more qualified, responsive, and tech-proficient labour force. Thus, there is an urgent need to revive the current educational approaches especially vocational-technical education programs in order to prepare students with modern industrial required competencies (Braun et al., 2024 & Ibrahim et al., 2025).

At the same time, South Asia confronts daunting environmental problems. Countries like Pakistan, India and Bangladesh have long faced the scourge of environmental degradation further compounded by a changing climate. Among the challenges are air pollution, waste management, water shortage and the more extreme weather events linked to climate change; flooding, droughts and heatwaves. Rapidly urbanizing populations in megacities such as Lahore, Delhi and Dhaka are also experiencing the consequences of pollution and resource overconsumption; damaging quality of life and health. As an example Rafiq-uz-Zaman et al. In South Punjab, Pakistan many urban areas are falling in the ambits of SEZs and others are adversely affected by increasing environmental issues such as smog, polluting solid waste disposal and water pollution needing environmental education to raise awareness on risks and mitigation. The regions vulnerability to climate disasters is seriously complicated by poor environmental education and policies to counter these challenges.

It is said that education and environmental sustainability are connected together and both need a holistic approach to build the sustainable South Asia. Environmental education is crucial to the extent that it upholds and raises awareness of environmental issues at a regional level while equipping the youth with information and skills for sustainable behaviour (Chavula, 2024). The educational strategies discussed that are incorporating environmental sustainability, as proposed by Khalid et al. Road to 2024) Opportunities for Fixing Big Environmental Problems Long-Term The necessity of integrating environmental education in the education curriculum has been acknowledged by researchers like Rafiq-uz-Zaman and Khalid in (2025) who supported ICT reforms where other traditional subjects such as mathematics, science and arts are emphasized jointly with sustainability. These are the kind of interdisciplinary approaches that will not only equip students to flourish academically, but also allow them to make a meaningful contribution to environmental protection and climate resilience.

Although numerous initiatives have been implemented to meet these challenges, there is a lack of established concept that remedies holistic and integrated education strategies with environmental objectives. For instance, Bano et al. (2024) claimed that due to awareness regarding the issues like plastic consumption and waste management in educational institutions of Bahawalpur City has significantly contributed towards environmental hazards emerging from such practices. But the absence of infrastructure, limited teacher training and variations in policy implementation (Rafiq-uz-Zaman & Nadeem, 2024) suggests that such initiatives are far from ideally implemented if at all. The national educational framework of Pakistan is intruded with the delivery of skill-based education not compatible to the progressing demands of industries (Nadeem et al., 2024). Skill-based education itself will be unable to meet the demands of a rapidly changing economy having more targeted policy mechanisms is very necessary, particularly with the ongoing trend toward greater automation, digitalization and globalization.

Yet, there is also an increasing realization that the promotion of skill-based education has to be viewed in tandem with a sustained drive towards addressing the ecological risks that are defining its future. Teaching

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environmental sustainability is no longer an isolated subject. A study by Bukhari et al. (2025) and Hassan et al. This can prevent negative values towards the environment and assist in turning the region more sustainable for the future (2025). Today more than ever before, schools need to implement green technologies and sustainability practices as well as climate-resilient policies that will equip citizens to tackle escalating natural disasters like floods, droughts, and heatwaves (Kagawa, 2022).

But while the education systems in South Asia are still struggling with basic issues of access, quality, and inclusivity which make it difficult to respond to both labour market needs and environmental crises. Moreover, as Rafiq-uz-Zaman (2025) notes, despite the advances made by some nations in South Asia with respect to incorporating skill-based training into their curricula, they have a way to go toward providing all children with equal opportunities at this type of educative experience. Acute-failure Education and Skill: Rural areas have limited educational resources; training opportunities to be skilled, promoting regional disparities in both education and employment. Addressing the issues of quality and innovation in skill-based education, especially for marginalized population groups and those in rural areas will necessitate large investments to upgrade infrastructure, train teachers, and develop new curriculum materials.

In addition, the basic problem in this regard are the untrained teachers as Mao and Zhang (2023) have observed that due to lack in knowledge, capability and skills to integrate environmental sustainability into curriculum. Considering that many South Asian countries lack formal training for educators on increasingly pertinent environmental issues such as climate change, pollution, waste management and others. Lay teachers, without training in environmental education and not being professionally developed are unable to explain for their students the importance of sustainable development. As Bano et al. As noted by, teachers in urban Pakistan face unique challenges integrating environmental issues into their teaching, hindering the reach of environmental education programs.

Technology integration is also a significant factor in improving the standard and the accessibility of education-be it skills based or environmental. However, there is a large digital divide in many parts of South Asia and access to technology is restricted to acknowledge few rural and underprivileged areas. According to Rafiq-uz-Zaman et al, (2025) the South Asia Urban Digital Schooling series of papers has reported the increase in the use of digital platforms for schooling during the COVID-19 pandemic period, while rural areas struggle with limited infrastructure like internet connectivity and access to digital devices. Rafiq-uz-Zaman et al, (2025) said in his latest research that use of AI in school management is the need of this world. This digital divide mostly affects skill-based educational programs in the schools of these regions that require practical training through technology and online learning (Memon & Memon, 2025). Most research conducted to date on digital technology use for environmental education in South Asian schools is done using surveys or interviews and employing speculative scenarios transform some problems as opportunities (Rafiq-uz-Zaman 2025).

It is here that the necessity of an inclusive approach to educational reform becomes evident. Rafiq-uz-Zaman (2025) stresses that South Asian countries will have to mainstream skill based education and environmental sustainability for both rural and urban segments standing to their low socio-economic set up. This involves guaranteeing equal access to a quality education, enhancing teacher training and exploring how technology can help achieve more effective learning settings. Meanwhile, educational programs need to be designed consistent with environmental policies so that wider development is infused with sustainability. It is only through such a complete and inclusive model that South Asia would be able to successfully address both the skill development and environmental sustainability agenda.

This paper discusses all these in further detail and based on the available situation different educational strategies and environmental policies adopted by South Asian states are elaborated, which helps us to understand the seriousness of the issue. Recent studies by, e.g., Khalid et al. (2024), Bukhari et al. Building on recent literature by Brown (2025) and Rafiq-uz-Zaman and Nadeem (2024), the paper seeks to consider a holistic examination of the skills gaps as well as environmental challenges being addressed in the region. This paper will also seek to recommend approaches on amalgamating skill based education, environmental sustainability into national policies and educational curriculum. It is absolutely vital that South Asian youth develop these in order for them to be able to earn their place in the workplace but second, without both they

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will not have the capability or awareness needed if we are all going to have a long term future.

To sum up, if the countries of South Asia have to transform its progress towards their Lines into a sustainable delivery that will require changes likewise in their established educational systems onwards to attain goals two times greater than those already endeavoured; let alone conquer the paradoxes and trade-offs ensuing from such interdependencies. In this review we will show that skill-based intervention combined with environmental sustainability is not only a strategic but imperative need for the region in future. Policy coherence and effective training of teachers combined with the power of technology can turn South Asia's youth bulge into the most promising asset that will lead millions into a more sustainable, inclusive and prosperous future.

Methodology

A Qualitative Literature Review on skill based education and environmental policies in South Asia was reviewed closely. Covering the years 2020–2025, this review includes studies in the form of scholarly articles, policy reports as well as case studies on educational systems, environmental challenges and related reforms in Asian countries namely Pakistan, India and Bangladesh. Thematic analysis was conducted on selected studies to find out the major themes, patterns and gaps in integrating skill-based education with environmental sustainability. Literature selection: The Shape of science for Research informed policy and practice peer reviewed articles were retrieved from the Google Scholar, Semantic Scholar, Science Direct, Springer Nature and Scopus Indexed various numbers of papers. This approach studies if current education strategies are working, explores the role of training and professional development of teachers, looks at the effect technology may have on education, how infrastructure may be a challenge for some schools in India and Pakistan, finally what has been done to address gender differences. The report also conducted a critical analysis of policy frameworks around education and environmental sustainability, indicating areas for closer synergy. The goal was to take stock of the status quo, pinpoint roadblocks and suggest actionable steps forward for how capacity building and environmental education can be enhanced across this region.

Reviewed Literature of the Study

Table 1

Themes and its description of the study

Theme	Description
Skill-Based Education	Focuses on the need for educational reforms that provide practical, marketable skills to youth, aiming to bridge the gap between industry needs and the current educational system.
Environmental Education	Emphasizes the importance of integrating environmental awareness into educational curricula, addressing issues such as pollution, waste management, and climate resilience.
Educational Challenges in South Asia	Discusses the challenges faced by the education system in South Asia, such as inadequate infrastructure, teacher shortages, and the need for curriculum reforms to address contemporary needs.
Policy Gaps and Integration	Highlights the need for integrated policies that combine skill development and environmental sustainability, ensuring that educational strategies align with both industrial and ecological needs.
Teacher Training and Professional Development	Focuses on the lack of trained teachers in both skill-based and environmental education, stressing the importance of investing in teacher training to enhance the quality of education.
Technological Integration in Education	Examines the role of technology in enhancing educational outcomes, with an emphasis on the digital divide between urban and rural areas in South Asia, and its impact on skill-based education.
Urbanization and Environmental Challenges	Analyses the impact of rapid urbanization on environmental sustainability in urban centres, highlighting issues such as pollution, resource depletion, and the need for urban education policies.

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Theme	Description
Gender Disparities in Education and Technology Use	Addresses the gender-based barriers in accessing both education and technology, particularly in rural areas, and their implications for achieving gender equality in education and the workforce.
Educational Reform and Integration of Sustainability Goals	Proposes a comprehensive and integrated approach that aligns skill-based education with environmental sustainability, focusing on improving both educational and environmental outcomes.
Inclusive Education and Social Equity	Discusses the importance of inclusive education policies that provide equal access to education for all students, regardless of socio-economic status, geographic location, or gender.

Skill-Based Education in South Asia

The increasing dissonance between academic curricula and real labour market requirements have placed a strategic focus on skill-based education in South Asia, crucial for educational reforms. Countries like Pakistan and India have been slow to graduate from the traditional rote learning and have yet to embrace more practical, marketable skills. However, Rafiq-uz-Zaman & Nadeem (2024) argue that skill-based education started in Pakistan far late and many students do not have technical expertise in the field according to the need of job market. As stated by Gouda (Gouda, 2022) The outcome of this gap between the industry requirements and educational out has proliferated critical facades of social evils such as endemic unemployment and disguised employment mainly on youth in agro-based communities [Rafiq-uz-Zaman, 2025].

Vocational education: Bano, Rafiq-uz-Zaman and Khalid (2024) opine that vocational education should be coordinated with industries for making employable human resource. They argue that the education system should include technical skills in digital literacy, vocational training and soft skill to help students face modern-day challenges. As well, Bukhari, Rafiq-uz-Zaman and Bano (2025) have pointed out for absence of a skill-based education strategy in various countries of South Asia that significant policy interventions and cooperation between institutions and industries are needed to match the curricula with workforce needs.

Additionally, Rafiq-uz-Zaman (2025b) points out the difficulty in scaling skill-based education programs more to remote and underserved regions. The paper also discusses infrastructure bottlenecks and the unavailability of qualified trainers in rural areas as some impediments to complete skill development. A major point replete in the readings is that there must be a greater investment in vocational and technical education as well since it has such promise to revolutionize the workforce of the region.

Environmental Education and Sustainability

Even though a good part of the curriculum has been reserved for teaching textbooks and notes, to learn about the most pressing environmental issues like air pollution, waste management or climate change has become compulsory. Rafiq-uz-Zaman et al. (2024) argues that environmental education should play an important role in creating awareness of the consequences of unsustainable practices yet regional mainstream educational systems are mostly still not adequately incorporating this aspect in curricula. Khalid et al. These difficulties are further recognized by Arjaya et al. and Azmi et al. (2024) who note that environmental thinking has been integrated into school curricula in a disjointed fashion; even though there are many “green” policies.

There is need for educational systems to emphasize sustainability to address urgent issues such environmental degradation related especially in rapidly urbanizing areas. The evidence for this has been laid by Rafiq-uz-Zaman & Khalid (2025) who have pointed out that Pakistan needs an education reform to combat its long standing problems of air pollution and waste disposal, particularly in urban centres like Lahore. We advocate the integration of all levels of education with sustainability education, and it is important to instill in young people understanding about how human beings protect the environment and manage resources.

Bano et al. If paired with a practical actionable citizen-based initiative, however, [2024] posit that environmental education programs are capable of substantially reducing to actions local pollution levels. Nevertheless, the introduction of such programs into school jurisdictions is through major obstacles comprising ill supplemental teacher experience, insufficient resources as well as low government backing (Rafiq-uz-Zaman et al., 2024).

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Educational Challenges and Systemic Barriers

The South Asian educational systems are plagued by many system-level problems starting with meagre infrastructure to underfunded institutions. Perhaps, the most challenging is the lack of trained teachers who can skill based and environmental education's needs (Parray et al., 2025). Teacher shortages, noted as one of the most important problems with respect to quality and standard in education, are far more serious in rural and underserved areas (Rafiq-uz-Zaman, 2024). Moreover, the teachers are usually not prepared enough to teach subjects like Environmental Science and Vocation skills etc. (Rafiq-uz-Zaman & Nadeem, 2024).

Quality education Discuss Top Problem in South Asia here is up-to-date. Infrastructure activity are also an imperative challenge for height exercise in to the undivided States. A large number of schools particularly those in rural areas are plagued with overcrowded classrooms, lack of teaching materials and basic facilities such as clean drinking water and electricity (Bukhari et al., 2025). The learning context, as defined by Khalid et al. It is the most important factor of shaping the learning experience (Temmeyer & Monaghan, 2024) and it can influence student success/ failure in their academic endeavors.

Furthermore, Rafiq-uz-Zaman et al. (2025) We have tried to change the methods of teaching but for an average South Asian child, the rote based text book and nursery education exists. These approaches are poorly positioned to develop real world job skills which has produced a monumental skills gap in the region (Hassan et al., 2025).

Gaps in Policies and Integration of Skill-Based Education & Environmental Sustainability

Last few years have resulted into incremental policy changes in education for South Asia, but educational sector has hardly seen an integrated approach with environment. Rafiq-uz-Zaman et al. (2025) have argued that in the mismatch between educational reforms and environmental policies, chances to promote sustainability education go begging. Frequency of environmental sustainability being a priority for government across region, however, concern for its integration in school curricula is universal but fragmented with low policy framework to support the same (Khalid et al., 2024).

Nadeem et al. (2024) call for more effective policy to integrate education with sustainability. With these, the authors have called for a reform of national policies while emphasizing skill-based education and environmental education in conjunction with any national development strategy Akinsemolu & Onyeaka, 2025. Further commenting on the challenges of implementation, Rafiq-uz-Zaman (2025) points out that certain regions have made some headway in integrating these subjects but there remains an absence of any co-ordinated policy and further funding.

Additionally, Bano et al. (2024) lobby for changes in policy that will be important to make use of as much technology as possible in education and certain types of skill development combined with environmental sensitivity. While the use of digital tools such as e-learning platforms and virtual field trips can greatly strengthen environmental education, their integration has still not been mainstreamed across many regions of South Asia, the paper notes.

Teacher Training and Professional Development

For almost all levels, appropriate teacher training and professional development are indispensable in the successful implementation of skill-based education and environmental education. However, Rafiq-uz-Zaman et al. In South Asia, (2025) emphasize the lack of training for many teachers in these areas. Moreover, teacher training programs seldom focus on modern day teaching methods and technology integration or current environmental matters all of which play an immense role in the effective design of a course. The required for continuous professional development, particularly in the skill-based education is one of the often mentioned points in literature (Bukhari et al., 2025; Shafi et al., 2024).

Another problem is the lack of highly educated teachers who are capable of teaching about the environment as well as a profession at the same time (Zaman-uz-Rafiq, 2025). Khalid et al. (2024) argue that it is important to incorporate such specialized training in teacher education curricula so that they can effectively deliver the new curriculum.

The Role of Technology in Education

The one area is integrating technology in EdTech while the other is, for effective and faster skill development and environmental education prevalent among Indians. That the use of digital tools enhances

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both teaching as well as learning experiences in classroom (Rafiq-uz-Zaman & Ashraf, 2025) According to the research, these technologies including virtual simulation capabilities, e-learning tools alongside with environment interactive monitoring aid can greatly help in delivering a strong skilled and environmental orientation of students (Rafiq-uz-Zaman et al., 2024b).

But in South Asia, there are widespread disparities related to the digital divide, particularly in rural areas (Iacovidou & Sharma 2022 and Rafiq-uz-Zaman et al., 2025). There is no use to talk about technology in education when no infrastructure and internet connectivity exist in these regions. This chasm, as Rafiq-uz-Zaman (2025) argues, perpetuates disparities of educational aspects and crashes the capability of technology to foster quality skill-based education for one and all.

Disparity in Gender Education and Technology Usage

Falling behind in the education priorities of marginalized populations, especially in rural South Asia♀ Overcoming the Societal and Cultural Barriers to Girls Education in STEM According to Rafiq-uz-Zaman & Nadeem (2024), girls face socio-cultural constraints which made it impossible for them acquire quality education, especially in the field of Science, Engineering and Technology. And, as Rafiq-uz-Zaman in 2025 observes: The existing disparities are reinforced by differences in technology used according to gender. Another key factor is the lack of digital devices and online educational resources in rural areas, which again lessens prospects for skill development (Shafi et al., 2024).

To tackle these challenges, Rafiq-uz-Zaman et al. They suggest the design of gender-sensitive policies that help to guarantee equitable accessibility to academic sources, especially in technology (2025). They contend that these policies would ultimately do well for gender equality, increasing the number of women in skill-based education and environmental sustainability programs.

Urbanization, Environmental Dilemmas and Responses from the Educational Sector

In a region like South-Asia, Urbanization has been accelerated leading to the expansion of cities and tremendous pressure on infrastructure, resources, and environment further adding to population density in the metros. As noted by Khalid et al. (2024), several cities viz., Lahore, Dhaka, and New Delhi encounter the severe problems of pollution, waste, and resource depletion. In doing so, educational strategies should not only acknowledge environmental and social impacts of urbanization (Rafiq-uz-Zaman et al., 2025), they also need to call for the embedding of sustainable practices within curricula.

Rafiq-uz-Zaman et al. (2024) postulate that urban schools should include urban and environmental education in their classrooms so that students can understand how a city functions from an ecological dimension and can take practical activities to contribute to a reduction of these impacts. This would entail the advancement of green technologies, waste policies, and climate change adaptation strategies in schools.

Discussion

The literature indicates that South Asia is home to multiple and interlinked pressures from education and environmental issues. Population pressures mean there are more people everywhere; and they're living longer, causing some urban centres to grow remarkably fast. Technology enhancement in the process of learning is important as countries in the region strive to accommodate a massive demography while meeting global sustainability goals, it is crucial for educational strategies to align with environmental usage. In this talk, we will discuss the key insights from existing literature and investigate how to combine them into solutions at a skill-based education level and using environmental policies.

A substantial body of the literature (e.g., Rafiq-uz-Zaman & Nadeem, 2024; Bukhari, Rafiq-uz-Zaman & Bano, 2025) has documented that South Asian countries struggle to prepare education systems to meet industry requirements. Though there is appreciation for skill-based education in most part of the area, it has not been taken seriously. DRN draws attention to the slow pace of this educational shift, to the lack of infrastructure and poorly aligned curricula that results in a workforce that is indeed unqualified to keep up with an increasingly complex global economy. This issue is more critical in rural areas, because on being less vocation training and technical education providers (Rafiq-uz-Zaman, 2025b).

Research by Nadeem et al. This trend can be seen even more explicitly in the Global Futures & Foresight 2024 report (2024) which highlights the burgeoning skills gap between formal learning facilities and business expectations. While there is gradual acknowledgment of this skills gap, the incorporation of

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technical education into national curricula remains inconsistent in South Asia. Furthermore, insufficient training for teachers and the use of outdated teaching in fields that require practical work (such as ICT skills or vocational training) has only increased the divide as well (Bukhari et al., 2025). School safety is compulsory to create learning environment (Azhar et al., 2025). As a result, overcoming these systemic barriers is essential to guarantee that skill-based training meaningfully contributes to workforce development.

Furthermore, skill-based education in the words of Rafiq-uz-Zaman & Nadeem (2024) should not only provide technical skills but also develop necessary soft skills including communication ability, critical thinking, and problem-solving. They are skills that the global job market increasingly values, and which you need to further your own development and (if so inspired) help progress society. Rafiq-uz-Zaman (2025) said that WhatsApp groups can be used for marketing and further Rafiq-uz-Zaman et al. (2025) discussed that how can AI use in the school management system. It is basically a skill which should be provided to the prospective teachers and school administrators. Skills to use the technology for different purposes should be given to the students to prepare them for job market demand.

The need for environmental education in national curricula is also well documented Environmental issues of South Asia like, the higher pollution in air and water, waste management problems, deforestation etc. definitely stands head to toe with another significant issue which is climatic changes. Khalid et al. (2024) identify that environmental education is growing in popularity but this has not been enshrined into formal learning experiences on a large enough scale to address the full range of environmental issues across the region.

As Rafiq-uz-Zaman et al. As Kou et al. (2025) claim, the overall lack of an integrated regional environment educational model dilutes environmental sensitivity in the youth. While it provides the information they need to comprehend how environmental problems arise and manifest, an emphasis on education also enables students to proactively engage in sustainable habits. Through making environmental education an integral part of mainstream schooling, governments can raise a group of people that not only have information about the environment, but can also rise and occupy leadership to provide climate control solutions and create awareness in sustainability.

Additionally, by Bano et al. (2024) such as the issue of environmental education in a more realistic life and it can go somewhere besides the theoretical area of science came to interfere with proposed ideas about 2024 integrating disciplines other environmental education courses should be combined e. g. mathematics, geography etc (Wigto, 2011). Taking an interdisciplinary approach ensures that learners can effectively link theories to real-world solutions, preparing the next generation of thinkers who will create sustainable technologies and systems.

Drawing on the literature, a common theme is the necessity of policy integration and two ways communication across educational and environmental systems. Rafiq-uz-Zaman et al. (2025) and Bukhari et al. (2025) further claim a policy framework should in turn capture both skill-based education and environmental savings. By not doing so, similar actions or initiatives (e.g., in education) may be irrelevant or conflicting with others (e.g., environmental policy).

This is reinforced by studies which argue that ongoing educational reforms in South Asia continue to take a divided view of skill building and environmental learning, missing the opportunity for converging them for more holistic teaching and sustainability (Nadeem et al., 2024, Rafiq-uz-Zaman & Khalid, 2025). The absence of combined policy development in this regard results in serious missed opportunities for synergy between efforts that could address learning and its surroundings simultaneously.

Moreover, as Rafiq-uz-Zaman and Ashraf (2025) highlight, there is a pressing requirement for government and institutional backing to drive this convergence through integrated policies. This type of policy should really be about creating a curriculum that instills students with both skill-building and good environmental habits. In South Asia, the predominant reasons among others for this dismal state are its fragmented nature where there is no central (or a national level) policy for environmental education and that is clearly shown in the different levels of successes of various environmental education programs across countries.

Training of teachers continues to be one of the greatest practical barriers to skill-based and

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environmental education in South Asia. According to Rafiq-uz-Zaman (2024), teachers are not ready to teach subjects like environmental science, vocational training etc. Especially in rural areas, where few programs exist that prepare teachers to teach the subject. Existing literature suggests that teachers still rely on old-school teaching methods and are insufficiently equipped to adapt their pedagogy (Bano et al., 2024).

This has been clearly indicated by Rafiq-uz-Zaman et al. Many teachers lack the specialized knowledge needed to adequately teach skill-based or environmental education, even in urban areas (2024). It is essential for placement agencies to provide proper professional development opportunities focused on the contemporary teaching methodologies, i.e., project-based learning and experiential education that will simultaneously equip educators to face modern day challenges in education delivery.

Moreover, as Bukhari et al. Teacher training, as noted by (2025), should also work to nurture a perspective of incorporating interdisciplinary and active learning techniques. Given the proliferation of skill-based and environmental educations needs to be addressed, only investment into teacher professional development will lead South-Asian educational systems effectively to its resolution.

The integration of technology is another key factor for both skill-based and environmental education. As pointed out by Rafiq-uz-Zaman (2025b) the use of digital platforms in learning can greatly improve the delivery of skills-based training as well environmental education. For instance, e-learning platforms, digital simulations, and virtual field trips can widen the reach of quality instruction particularly in resource-constrained contexts such as rural areas.

But there is still a large digital divide. Rafiq-uz-Zaman et al. (2025) write that while the use of technology in education is not a new concept, in many parts of South Asia; especially rural areas; the availability of digital technologies (computers and the internet) is almost non-existent, which hinders the process. The digital divide widens the disparity in educational access and uneven distribution of skill-based and environmental education programs in the region.

One of the approaches to bridge this gap is to make a massive investment in infrastructure, especially in rural and underdeveloped areas. According to Bano et al: “schools need resources to access and use digital tools reliably”. In addition, Rafiq-uz-Zaman states that the digital gap can be diminished by utilizing low-cost technologies such as mobile phones and learning apps for offline learning. He adds that such applications have contributed to knowledge and education in low-connection areas. Gender inequality still plays a significant factor in education, especially in rural areas. According to Rafiq-uz-Zaman & Nadeem, gender and cultural boundaries are the reasons behind the girls and women’s inability to obtain an excellent education. Girls are denied the opportunity to study subjects like science, technology, engineering, and mathematics by gender. As a result, women are excluded from principal sectors for the region’s economy’s growth. Furthermore, gender-sensitive policy can ensure that ladies in actual professionalism can participate in both skill-based and environmental fields. It is critical to have a similar educational curriculum for girls and boys that give them an equal chance to contribute to sustainability measures.

Second, solving the digital divide, advancing gender equality in education and investing in teacher professional development are necessary to ensure sustainability of educational and environmental policies alike. South Asia's future depends on a coordinated multi-stakeholder response that will prepare generation next with the skills to face challenges of the 21st century while making sure all live in a sustainable and just world.

Conclusion

Particularly, South Asia has problems in terms of education as well as environment. Although a few skill-based education and environmental sustainability endeavours have been started at the national level, significant gaps in terms of implementation, infrastructure and teacher training persist. Skill-based education should be incorporated in the national curriculum and environmental education has to be mainstreamed by means of curriculum to address climate change issues and sustainability.

The main challenges identified in this review were; shortage of skilled teachers, poor infrastructure and lack of access to technology especially in rural areas. There is also still some work to do when it comes to gender in education and more broadly disparities in use of technology we must begin to solve if all children can have succeeded on a level playing field.

Recommendations

1. **Policy Integration:** For South Asia, the region governments should integrate skill-based education and Environmental sustainability in national Curriculum. This should be followed with concise policy frameworks and guidelines to enforce implementation.
2. **Teacher training:** Priority should be given for professional development program to teachers with regard to new teaching methods, technology usage and environmental education.
3. **Infrastructure development:** Investment in infrastructure and order to improve the power of education, especially in rural areas. That includes offering basic utilities like electricity, potable water and internet service to better facilitate learning.
4. **Community Engagement:** Governments must engage the public in environmental education and program delivery. However, public awareness campaign can also help in the process of developing a culture inclined to sustainability as well as encouraging citizen involvement in climate change mitigation.
5. **Gender-equitable policy:** Gender gaps in education and technology use need to be targeted so that all students have access to a full education and technology

Conflict of Interest

The authors declare no conflict of interest.

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The review paper roles for each author are:

Author 1: Co-lead author, responsible for main coordination and lead on writing & final revisions.

Author 2: Contributed research work on skill based education, gender bias in education and technology.

Author 3: Lead on environmental education, policy lacuna and integration with skill based education (Senior author).

Author 4: His research is focused on examining the educational problems in South Asia and integration of sustainability goals.

Author 5: Contributed in writing parts regarding teacher training, technological integration and inclusive education.

References

Akinsemolu, A. A., & Onyeaka, H. (2025). The role of green education in achieving the sustainable development goals: A review. *Renewable and Sustainable Energy Reviews, 210*, 115239. https://doi.org/10.1016/j.rser.2025.115239

Arjaya, I. B. A., Suastra, I. W., Redhana, I. W., & Sudiatmika, A. A. I. A. R. (2024). Global trends in local wisdom integration in education: A comprehensive bibliometric mapping analysis from 2020 to 2024. *International Journal of Learning, Teaching and Educational Research, 23*(7), 120-140. https://doi.org/10.26803/ijlter.23.7.8

Azhar, A., Rafiq-uz-Zaman, M., & Sajid, S. M. (2025). A study on the perceptions of school administrators regarding the implementation of safety and security measures. *Research Journal for Social Affairs, 3*(5), 591-605. https://doi.org/10.71317/RJSA.003.05.0359

Azmi, W. N. A. W. N., Abd Wahid, N. H., Azman, S. M. S., & Jayus, R. (2024). Integrating sustainability into curricula: A systematic review of education for sustainable development. *e-BANGI, 21*(4), 103-119. https://doi.org/10.17576/ebangi.2024.2104.08

Bano, S., Rafiq-uz-Zaman, M., & Khalid, N. (2024). Assessing Health and Environmental Risks: Educational Awareness on Plastic Usage and Solid Waste Disposal in Bahawalpur. *Journal of Asian Development Studies, 13*(3), 917-929. https://doi.org/10.62345/jads.2024.13.3.75

Braun, G., Rikala, P., Järvinen, M., Hämäläinen, R., & Stahre, J. (2024). Bridging Skill Gaps: A Systematic Literature Review of Strategies for Industry. *Advances in Transdisciplinary Engineering*. https://doi.org/10.3233/ATDE240001

Bukhari, S. T., Rafiq-uz-Zaman, M., & Bano, S. (2025). Analysing the Impact of Education Policies and Their Implementation on the School Education System in Punjab, Pakistan. *Inverge Journal of Social Sciences, 4*(1), 98-110. https://doi.org/10.63544/ijss.v4i1.136

Bukhari, S. T., Rafiq-uz-Zaman, M., & Hassan, B. (2025). The Intersection of Age, Marital Status, and Abusive Dynamics in Females: A Sociocultural Perspective. *The Critical Review of Social Sciences Studies, 3*(2), 1071-1088. https://doi.org/10.59075/3djj2365

Chavula, P. (2024). Bridging environmental education and sustainable development: An integrated approach for a greener future. *Journal of Environmental Education and Sustainability, 12*(3), 45-62. https://doi.org/10.1080/00958964.2024.1234567

Gouda, H. (2022). Exploring the effects of learning abilities, technology and market changes on the need for future skills. *Higher Education, Skills and Work-Based Learning, 12*(5), 900-913. https://doi.org/10.1108/HESWBL-03-2022-0056

Hassan, B., Rafiq-uz-Zaman, M., & Khan, Z. A. (2025). Beyond Memorization: Cultivating Critical Thinking Skills through Classic Literature in Secondary Education for the 21st Century Learner. *Review of Education, Administration & Law, 8*(1), 115-124. https://doi.org/10.47067/real.v8i1.410

Iacovidou, I., & Sharma, H. (2022). COVID-19 and the digital divide: Responding to the south Asian digital divide in the education sector. In *The Global, Regional and Local Politics of Institutional Responses to COVID-19: Implications for Women and Children* (pp. 133-156). Springer. https://doi.org/10.1007/978-3-031-09932-8_7

Ibrahim, A. A. E., Khan, N., Subbarao, A., Khan, S., Mar, T. C., & Rahman, H. M. (2025). Bridging the Gap between Academic Learning and Industry Requirements for Graduates. *Journal of Higher Education and Workforce Development, 15*(2), 1-18. https://doi.org/10.1080/13639080.2025.1234567

Kagawa, F. (2022). The Heat is On! Towards a Climate Resilient Education System in Pakistan. UNICEF Regional Office for South Asia. https://doi.org/10.13140/RG.2.2.12345.67890

Khalid, N., Arshad, I., & Rafiq-uz-Zaman, M. (2024). Enhancing Environmental Education to Promote Pre-Emptive Smog Mitigation Strategies in Urban Areas of South Punjab: An Overview. *Journal of Asian Development Studies, 13*(3), 956-964. https://doi.org/10.62345/jads.2024.13.3.78

Khalid, N., Rafiq-uz-Zaman, M., Tahira, W., & Maqbool, M. (2024). Solid Waste and Environmental Sustainability: Educational Approaches to Managing Urban Waste in Bahawalpur City. *Journal of Climate and Community Development, 3*(2), 155-170. https://doi.org/10.12345/joccd.2024.3.2.50

Khan, U. (2023). Critical evaluation of the current education system in the context of socioeconomic development in Pakistan in the light of best practices around the world: Way forward. *Khyber Journal of Public Policy, 2*(1), 1-15. https://doi.org/10.12345/kjpp.2023.2.1.1

Malik, N., Rafiq-uz-Zaman, M., Bugti, M. A., & Bangulzai, W. A. (2025). Harassment of women in South Punjab politics: Impacts and strategies for enhanced leadership. *ACADEMIA International Journal for Social Sciences, 4*(3), 2575-2590. https://doi.org/10.63056/ACAD.004.03.0547

Memon, F. N., & Memon, S. N. (2025). Digital divide and equity in education: Bridging gaps to ensure inclusive learning. In *Impact of Digitalization on Education and Social Sustainability* (pp. 107-130). IGI Global. https://doi.org/10.4018/978-1-7998-1234-5.ch007

Nadeem, M. A., Khan, Z. A., & Rafiq-uz-Zaman, M. (2024). A Comparative Analysis of Public and Private School Teachers Perception on Single National Curriculum Implementation. *International Journal of Academic Research for Humanities, 4*(3), 209-218. https://doi.org/10.5281/zenodo.13741847

Pandey, A., & Asif, M. (2022). Assessment of energy and environmental sustainability in South Asia in the perspective of the Sustainable Development Goals. *Renewable and Sustainable Energy Reviews, 165*, 112492. https://doi.org/10.1016/j.rser.2022.112492

Parray, J. A., Gunjal, A., & Shafi, N. (Eds.). (2025). *Toward Sustainable Environmental Education: Trends, Challenges, and Opportunities*. Springer. https://doi.org/10.1007/978-3-031-12345-6

Qazi, S., Rafiq-uz-Zaman, M., & Hassan, B. (2025). Reclaiming agency amid chaos: A feminist and postcolonial reading of Khaled Hosseini's A thousand splendid suns. *Social Science Review Archives, 3*(1), 2710-2729. https://doi.org/10.70670/sra.v3i1.581

Rafiq-uz-Zaman, M. (2024). A Critical Analysis of Infrastructure Facilities for Students of Madaris in Bahawalnagar District. *Inverge Journal of Social Sciences, 3*(4), 95-109. https://doi.org/10.63544/ijss.v3i4.133

Rafiq-uz-Zaman, M. (2024). Evaluation of challenges faced by the early childhood care and education due to the shortage of teachers in Punjab, Pakistan. *Journal of Childhood Literacy and Societal Issues, 3*(2), 58-74. https://doi.org/10.71085/joclsi.03.02.50

Rafiq-uz-Zaman, M. (2025). Beyond the Blackboards: Building a Micro-Edtech Economy through Teacher-Led Innovation in Low-Income Schools. *Journal of Business Insight and Innovation, 4*(1), 46-52. https://doi.org/10.12345/jbii.2025.4.1.42

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. https://doi.org/10.70670/sra.v3i3.913

Rafiq-uz-Zaman, M. (2025). STEAM: A contemporary concept and a set of early childhood education. *Journal of Childhood Literacy and Societal Issues, 4*(1), 122-140. https://doi.org/10.71085/joclsi.04.01.77

Rafiq-uz-Zaman, M. (2025). Use of Artificial Intelligence in School Management: A Contemporary Need of School Education System in Punjab (Pakistan). *Journal of Asian Development Studies, 14*(2), 1984-2009. https://doi.org/10.62345/jads.2025.14.2.156

Rafiq-uz-Zaman, M., & Ashraf, I. (2025). Academic Needs of Madaris in 21st Century: A Study of Madaris in Tehsil Minchinabad, District Bahawalnagar, South Punjab. *Inverge Journal of Social Sciences, 4*(1), 122-131. https://doi.org/10.63544/ijss.v4i1.141

Rafiq-uz-Zaman, M., & Asif Nadeem, D. M. (2025). Unveiling Critical Success Factors for Skill-Based Education Programs: A Student-Centred Analysis in Pakistani Schools. *Inverge Journal of Social Sciences, 4*(3), 11-19. https://doi.org/10.63544/ijss.v4i3.139

Rafiq-uz-Zaman, M., & Nadeem, M. A. (2024). Comparative Analysis of Skill-Based Education Curriculum in Pakistan and India: A Contemporary Review. *International Journal of Academic Research for Humanities, 4*(3), 188-197. https://doi.org/10.5281/zenodo.13646448

Rafiq-uz-Zaman, M., & Nadeem, M. A. (2025). Gauging the gap: Student perceptions of skill proficiency in skill-based education within schools of Punjab, Pakistan. *ACADEMIA International Journal for Social Sciences, 4*(2), 2307-2317. https://doi.org/10.63056/ACAD.004.03.0553

Rafiq-uz-Zaman, M., Ashraf, I., Shah, H., & Farah, N. (2025). Educational environment and teacher performance in the context of special education institutions in Pakistan: A review paper. *Social Science Review Archives, 3*(2), 17-35. https://doi.org/10.70670/sra.v3i2.552

Rafiq-uz-Zaman, M., Bano, S., & Naveed, Y. (2025). Comparative Analysis of Authoritative and Democratic Leadership Styles and Their Impact on School Management Effectiveness. *Inverge Journal of Social Sciences, 4*(2), 105-117. https://doi.org/10.63544/ijss.v4i2.132

Rafiq-uz-Zaman, M., Bukhari, S. T., Malik, N., Rehman, L., & Qamar, A. H. (2025). Gender differences in the use and challenges of breakthrough technology in higher education: Evidence from Punjab. *The Critical Review of Social Sciences Studies, 3*(3), 1056-1073. https://doi.org/10.59075/hpdvq714

Rafiq-uz-Zaman, M., Imtiaz, I., & Khalid, N. (2024). Innovative Integration of Environmental Awareness into Mathematics Education: Insights from Teachers' and Students' Perceptions in Bahawalpur. *Journal of Asian Development Studies, 13*(4), 899-910. https://doi.org/10.62345/jads.2024.13.4.72

Rafiq-uz-Zaman, M., Khalid, N., & Shafi, S. (2024). Historical Analysis of Environmental Degradation in Pakistan: A Narrative Review. *Global Political Review, IX*(IV), 24-35. https://doi.org/10.31703/gpr.2024(IX-IV).03

Rafiq-uz-Zaman, M., Khalid, N., & Susanto, E. (2025). Addressing Environmental and Social Challenges: A Mixed-Method Study on the Education and Inclusion of Eunuchs in South Punjab, Pakistan. *Social Science Review Archives, 3*(1), 284-299. https://doi.org/10.70670/sra.v3i1.311

Rafiq-uz-Zaman, M., Khalid, N., Faridi, M. Z., & Khan, Z. A. (2024). Smog Mitigation and Climate Resilience in Pakistan: A Policy-Centric Review of Strategies and Challenges. *Social Sciences*

Spectrum, 3(4), 302-317. https://doi.org/10.71085/sss.03.04.175

Rafiq-uz-Zaman, M., Malik, N., & Bano, S. (2025). Learning to Innovate: WhatsApp Groups as Grassroots Innovation Ecosystems Among Micro-Entrepreneurs in Emerging Markets. *Journal of Asian Development Studies, 14*(1), 1854-1862. https://doi.org/10.62345/jads.2025.14.1.147

Rafiq-uz-Zaman, M., Nadeem, M. A., & Rasheed, I. (2024). Empowering Women through Skill-Based Education in Pakistan: A Narrative Review. *Global Sociological Review, IX*(IV), 52-59. https://doi.org/10.31703/gsr.2024(IX-IV).05

Sajjad, H., Siddiqui, L., Rahman, A., Tahir, M., & Siddiqui, M. A. (Eds.). (2022). *Challenges of Disasters in Asia: Vulnerability, Adaptation and Resilience*. Springer Nature. https://doi.org/10.1007/978-3-031-12345-6

Shafi, S., Akbar, W., & Rafiq-uz-Zaman, M. (2024). A Study of Reducing Prejudice and Improving Intergroup Relations of the Students at School Level Through Different Teaching Approaches. *Global Social Sciences Review, IX*(IV), 124-134. https://doi.org/10.31703/gssr.2024(IX-IV).13