

Educational Reforms and Economic Growth in Bangladesh: Insights for OIC Nations

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Keywords

Educational Reforms, Economic Growth, Human Capital, OIC Countries, Policy Implications

Abstract

Educational reforms are essential for influencing a nation's economic development by augmenting human capital, increasing labor productivity, and promoting innovation. This research examines the impact of education system changes on the economic development of Bangladesh, with the potential to provide other members of the Organisation of Islamic Cooperation (OIC) with valuable insights. This research utilizes a mixed-method approach, incorporating qualitative insights from policy studies and expert interviews alongside quantitative data. A quantitative cross-sectional survey with a standardized questionnaire was undertaken in multiple locations across Bangladesh, yielding 335 responses. To measure the validity of the predicted relationships and mediation effects, researchers employed structural equation modelling. Quantitative analysis shows that changes such as updating the curriculum and expanding technical and vocational education and training (TVET) have led to higher literacy rates, an increase in employment, and a reduction in poverty. Consequently, statistical analysis indicates that skill development significantly impacts economic growth, emphasizing the importance of targeted workforce training. Although literacy had a positive effect, it is not statistically significant, and quality and relevance are more crucial than availability. Science, technology, engineering, and mathematics (STEM) education was found to not directly affect growth, suggesting gaps in implementation. However, it aligns with the labor market, preparing workers. Labor market alignment is the best predictor of economic development, highlighting the need for education policies based on demand. Overall, the study finds it is important to keep the economy growing by ensuring that education matches the needs of the job market through skill development, literacy improvement, and integrated STEM education. These findings underscore the importance of holistic education policy in driving sustainable economic development, particularly for developing countries in the OIC.

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1. Introduction

Many developing countries, including Bangladesh and other members of the Organisation of Islamic Cooperation (OIC), have made huge investments in education. As an illustration, the amount of Bangladesh state spending on education has stayed 23 percent or 3 percent of the GDP over the last twenty years (World Bank, 2024). The hope has always been that better education leads to economies in the long run. However, it is not clear whether these education reforms have so far resulted in real economic improvement. This study looks at Bangladesh to understand if the changes in education policy over the past 20 years have supported the country's economic growth (Dhar and Dey, 2024).

Education is often addressed as the foundation of a country's advancement. It gives people knowledge and skills, helps improve productivity and open up more job opportunities—things that are crucial for economic development (Burns & Ungerleider; Islam, 2025). However, most discussions tend to speak in broad terms without zooming in on what happens within a particular country. For OIC countries, and especially Bangladesh, many studies focus on broader regions rather than individual nations, missing how specific reforms and local challenges shape the real impact of education (Al-Daihani et al., 2025; Enny *et al.*, 2025; Shuaib, 2024).

In the last twenty years, Bangladesh has made several efforts to improve its education system. The government has updated the curriculum, increased funding, and promoted technical and vocational training opportunities (Dhar and Dey, 2024; Akram, & Rasool, 2025). According to the report of UNESCO (2024); World Bank (2024) primary school enrolment increased from around 80% in the early 2000s to over 95% by 2022, while secondary enrolment also showed significant growth.

Still, several challenges are working to slow down progress. The quality of education is often uneven, many teachers lack proper training, and students are not always learning the skills that match job market needs (Kyaruzi, 2025; Okodugha *et al.*, 2024). Poverty in learning has not decreased, and a large number of students are not in a position to attain minimum reading level in the lower levels (World Bank, 2023). This leads to a crucial question: Have these reforms truly helped boost the economy? Or has their impact been limited because of poor implementation?

This study endeavors to analyze economic growth in Bangladesh from 2000 to 2022 and the effect of education reforms. The research investigates what reforms were carried out, their execution, and how useful they were in solving core economic parameters such as gross domestic product (GDP) growth, productivity, and poverty

reduction (Abdullah and Yousuf, 2025; Mannan *et al.*, 2023). In the same time, the GDP of Bangladesh increased by about USD 53 billion in 2000 and USD 460 billion in 2022 (World Bank, 2024). The research also establishes the practical limitations that affected improvements.

This study uses empirical data to closely investigate Bangladesh's education reforms. It adds value by showing how such reforms can do more than just put students in a classroom: they can improve the standard of education, equip students to learn skills which will be useful in real work, and bring about long-term economic development. The education also frames wider arguments within the OIC on how to build strong human capital, connect schooling to the labor market, and make growth inclusive (Raihan & Bourguignon, 2024).

2. Literature Review

It has been a long-cherished expectation of policymakers and economists to know how education connects to economic development (Mannan *et al.*, 2025). The most widely accepted theory has been provided by human capital theory, popularized by Gary Becker (1964). The theory advocates that when people are educated, they are productive, make good decisions, and therefore positively impact the country's economy (Shi & Wang, 2024).

Yet just getting students to school is not enough. Pritchett (2024) found that the number of years a student is in school does not necessarily refer to what and how much a student would learn. Indeed, most important is learning quality and the ability to think critically, problem solve, and apply knowledge in life. Economies that emphasize actual learning outcomes instead of merely attending school grow faster due to people's ability to absorb and use new technologies more efficiently (Kolyada *et al.*, 2024; Mannan & Maruf, 2025). However, the causal link between education and growth is not automatic. Smith *et al.* (2025) found that it pays to invest in tertiary education and research if the conditions are right. Nevertheless, Mhlanga (2024) warns that in most developing countries, inadequate research infrastructure and poor innovation systems will derail these gains. Regardless of careful education policies, without a sound institution and a long-term vision, they will fail.

This is the argument for strong institutions. Kang & Ling (2025) explain that good governance, good laws, and fair systems are crucial to rendering education reforms effective. However, most OIC countries are faced with weak institutions that undermine the impact of education investments. Education, as Kurniawati *et*

al. (2024) state, might expand in quantity, but without presence of good policies and their implementation, its benefits are likely limited. Social issues also get in the way of the role of education in development like rural-urban inequalities, gender inequalities, and unequal access prevent education from boosting country development. Mannan *et al.* (2023) emphasize that education must be equitable, inclusive, and aligned with the skills needed in the modern economy to play its role in development.

Therefore, it is worth examining how Bangladesh has tackled education reforms in recent years, focusing on skill development, literacy, and science, technology, engineering and mathematics (STEM) education, as well as ensuring that students are 'job-ready'. These areas are all interconnected to help a country strengthen its human capital and in economic growth in the long run.

3. Educational Reform Focus Area and Their Economics Linkages

3.1. Educational Reforms in Bangladesh

Bangladesh's education reforms have accorded the highest priority to curriculum modernization, particularly under the National Education Policy 2010. Observed that reforms are aimed at 21st-century skills formation through a shift from aged rote memorization methods to competency-based models with stronger emphasis on digital literacy and STEM learning. According to Yeni *et al.* (2024), the updated curriculum in Bangladesh introduced information and communication technology (ICT) lessons starting from grade six. It also added practical activities in science and mathematics, and included critical thinking skills across all subjects (Al Galib *et al.*, 2026). Research by the World Bank and International Labor Organization (ILO) found that there were big skill gaps in Bangladesh's labor market; this became a key reason for changing the curriculum to better prepare students for future jobs (Arab, 2025).

Bangladeshi employers have long complained that graduates lack competencies in communication, computer skills, and problem solving (Syed, 2024). The National Curriculum and Textbook Board reformed the curriculum to enhance analytical and application skills. For example, the instruction of language now focuses more on communicative competence than accuracy in grammar, while mathematics is taught by focusing on day-to-day application (Bhuiyan, 2024). However, implementation studies by Adeniyi *et al.* (2024) showed mixed results, with both progress and challenges. Although monitoring reports say that model schools, especially in cities, are showing improved student learning, national test results show that many

gaps remain. As Son (2024) notes, according to a survey that was carried out in December 2022, some of the secondary school teachers stated that they use the VR and AR technologies in their teaching to a limited extent. On the other hand, research by math (Sohal-Bagri, 2023) presented that in Laos, each teacher handles about 48 students—far from the target of 30—and only 35% of fifth graders meet the basic level in math.

Rural schools lag further behind due to poor resources and teacher training (Kyaruzi, 2025). Teacher readiness is a major challenge; reports from the Directorate of Secondary and Higher Education (2021, in Darling *et al.*, 2017) showed that only 35% of teachers have received extensive training on the new curriculum. Cross-national insights from countries like Vietnam and Malaysia are valuable in the Bangladesh scenario. First, ongoing professional development for teachers—rather than one-time workshops—are key to successful curriculum change (Datta, 2024). Second, the successful implementation of new curricula goes hand-in-hand with the presence of adequate instructional materials (Baker *et al.*, 2024).

The example of Indonesia shows that curriculum reform works best when teachers are properly trained and supported, especially with new assessments that focus on higher-level thinking skills (Darmawan, 2024). In Bangladesh, Mannan (2024) described curriculum reform as a positive but incomplete effort. Although the changes follow international standards, the uneven way they are being applied weakens their full impact. Sam (2024) added that future success will depend on solving deep problems like unfair distribution of resources, low teacher skills, and the need to align curriculum, teaching methods, and assessments more closely.

Bangladesh has also increased its education spending over the past two decades, from 1.9% of GDP in 2000 to 3.1% in 2022 (Dhar and Dey, 2024). This rise in funding shows that the government is making education a key part of national development (McPherson, 2024). According to Basabe and Galigao (2024), new funding has focused on three main areas: fairness (through support programs), teacher quality (with better pay and training), and access (by improving buildings and expanding schools).

Jackson (2024) reported that 42% of Bangladesh's education budget goes to teacher-related expenses like training and salaries. About 35% is used for building and fixing schools, and the remaining is split between student support programs (15%) and developing the curriculum (8%). One successful example is the Primary Education Stipend Project, which helped bring 93% of rural children into primary schools (Dhar & Sarker, 2023).

Nevertheless, the results of these investments are mixed. On the positive side, primary school enrolment rose from 87% in 2010 to 98% in 2023. The gender disparity index (GPI) for secondary education reached 1.03, signifying boys and girls now have equal access. However, major quality issues still exist.

3.2. Curriculum Modernization

Although expenditure on education in Bangladesh is increasing, the sector can be strengthened further if the focus shifts towards advancing students' learning outcomes. Raihan & Bourguignon (2024) referred to World Bank (2022) records that while the school enrolment in Bangladesh is high, on the other hand, the learning levels of students are lower compared to most of Bangladesh's neighbors. This shows a gap between access to education and the quality of education provided.

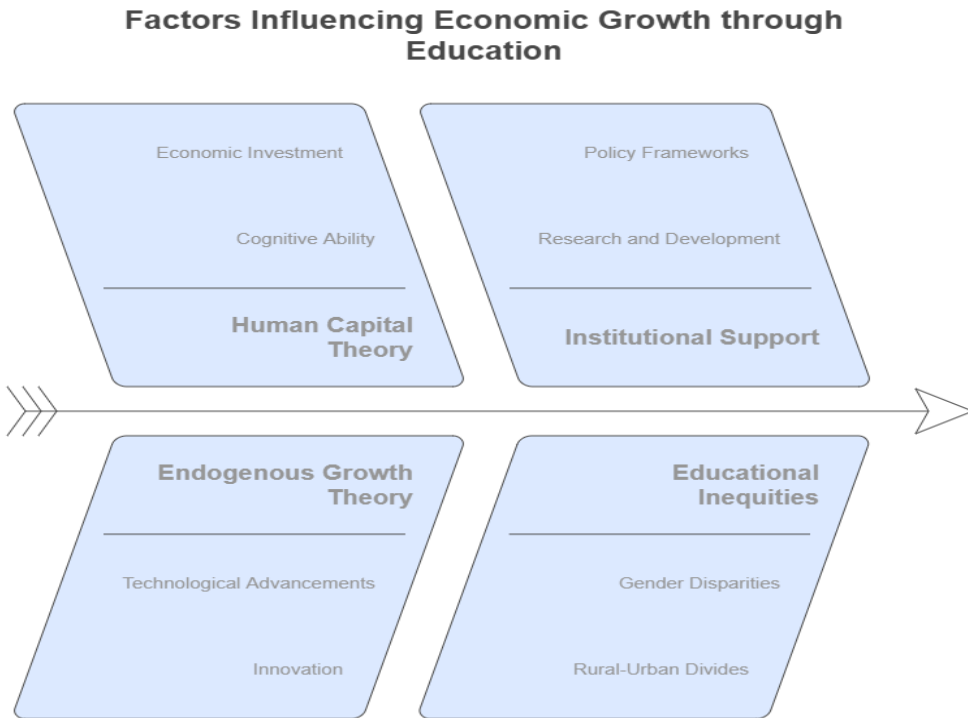


Figure 1. Factor Influencing Economic Growth Through Education

Shoumi *et al.* (2024) asserted that this aligns with broader findings in development economics, which emphasize the need of balancing increased access with enhanced quality. Raihan & Bourguignon (2024) suggested transforming more funding into enhanced educational outcomes, as Bangladesh's experience underscores the need for more targeted investments in learning materials, teacher

training, and assessment of outcomes. Figure 1 illustrates the relation of human capital theory and endogenous growth theory in policy framework.

3.4. Expansion of Technical and Vocational Education: Progress and Challenges

Since 2010, the Government of Bangladesh has taken major steps under Vision 2021 and other related initiatives to build a skilled workforce, significantly strengthening the country's technical and vocational education and training (TVET) sector (Dhar and Dey, 2024). According to the Bangladesh Technical Education Board (2022), the number of TVET institutions has grown from around 1,200 in 2010 to over 3,500, and annual student enrolment has increased from 150,000 to more than 500,000 (Kayes, 2024). TVET programs mainly focus on four key skill areas that support the country's growing industries: garments and textiles, information technology, construction and engineering, and agricultural technologies (ILO, 2019). These developments have been backed by several major initiatives (Wali *et al.*, 2023), such as the Skills for Employment Investment Program, funded by the Asian Development Bank. This program offers training that matches the needs of industries and works with over 200 private sector partners (Ullah *et al.*, 2024). In addition, around 60% of public vocational training centers now use skill standards developed by the National Skills Development Authority.

Meunmany (2024) stated that training techniques have transitioned from solely theoretical approaches to including a large proportion of practical activities, including workshops and industry internships. The findings of outcome studies provide a contradictory assessment of the effectiveness of TVET. Despite graduate tracking surveys revealing that 68% of graduates gain employment within six months post-graduation (in contrast to 42% of general education graduates), significant challenges need to be addressed (Tasfi and Mostofa, 2024). These results, in combination with employment rates, indicate that although vocational routes can help graduates gain employment opportunities, it is a challenge to ensure that the skills that they acquire match the industry needs (Okiridu & Onwudike, 2024).

Research by Abdullah and Yousuf (2025) found that efforts have been most effective in the ready-made garment sector, enabling participating companies to enhance productivity by 25%. However, they have been less fruitful in expanding sectors such as sophisticated manufacturing and renewable energy.

Three persistent concerns are identified in the literature as limiting the potential impact of TVET. Initially, technological developments in the sector sometimes precede curriculum updates by two to three years (Schultheiss, & Backes-

Gellner, 2024). On the other hand, according to Sufi *et al.* (2025), just 30% of training institutions maintain active industry partnerships beyond the mandated internships. Sheth & Shome (2025) found that TVET participation rates remain inferior to those of regional peers like as Vietnam and Malaysia, suggesting that public perceptions continue to prioritise academic education.

International comparisons indicate areas that may need improvement. Studies on Singapore's Skills Future initiative and Germany's dual education system underscore the need of establishing enduring industry involvement mechanisms and continuous curriculum flexibility. Shaha & Minz (2025) stated that micro-credentialing and the establishment of Sector Skills Councils are two recent policy modifications that provide potential solutions to these challenges in Bangladesh. The objectives of these modifications were to elevate educational standards, broaden educational options, and enhance worker capabilities to stimulate economic growth (Alenezi, 2023). Nonetheless, Mpala & Simatele (2024) considered other factors, including execution quality, resource availability, and the broader socioeconomic context, may have influenced the benefits of these improvements.

3.5. Skill Development

When education is able to focus on practical skills—like those needed in trades, technology, and industry—it can create more chances for people to get jobs or start their own businesses, ultimately this leads economic growth. In Bangladesh, growing TVET programs has helped many young people finding work or launch small businesses (Dhar & Dey, 2024). Nae *et al.* (2025) explained that teaching practical job skills helps more people find work and makes the economy stronger from the bottom up. Different research shows that addressing skill gaps identified by employers and updating the curriculum helps better match graduates with job market needs. (Syed *et al.*, 2024; Mishra, 2024; Abdullah & Yousuf, 2025).

So, it can be hypothesized that:

H1: Skill development has a significant effect on economic growth.

3.6. Literacy

Literacy is more than just reading books. When people are able to read, write, and understand essential information, they are more likely to make better health choices, get jobs, and support their families and communities (Burns & Ungerleider, 2025; Huazheva *et al.*, 2024). Unfortunately, in Bangladesh, an enormous number of children are still struggling with what the World Bank terms 'learning poverty'. They complete primary school without ever having learned even basic reading

capabilities (Alkateb, 2024). To solve this issue is significant if the country wants to benefit from all the economic and social rewards that education has in store. Basic reading and writing skills are essential for economic participation, especially in developing countries (Bhuiyan, 2024; Sohal-Bagri, 2023).

From the above literature, it is hypothesized that:

H2: Literacy has a significant positive effect on economic growth
Integrated STEM Education

As the world's businesses change, integrated STEM education becomes more imperative. To better align, Bangladesh has started the process of reforming to encourage students to take more STEM studies targeting the creation of a stronger and more competitive workforce. Countries that specialize in STEM experience faster innovation and more stable economic growth. Smith *et al.* (2025) explained that investment in STEM not only enhances productivity but also prepares the economy for any forthcoming challenges. STEM-focused education helps learners develop the technical and thinking skills needed in today's workplaces. So, it can be hypothesized that:

H3 Integrated STEM education positively affects economic growth.

3.7. Labor Market Alignment

Labor market alignment is how well the abilities, expertise, and traits of workers meet the needs of businesses and the economy today and in the future (Mohammed *et al.*, 2022). It ensures that schools and training programs turn out graduates who are ready and able to work in the labor market. This alignment is important for economic growth because it lowers unemployment and skill mismatches and raises productivity. When workers have the skills that employers want, companies can come up with new ideas and grow more quickly. Workers also get better pay and job stability, which raises living standards and lowers inequality. On the other hand, bad alignment leads to underemployment, wasted human resources, and slower economic growth. To help economies adjust to technological change and global competitiveness, they can make changes to education and training that will help people find jobs that match their skills. For example, they can expand vocational education, combine STEM skills, and encourage partnerships between schools and businesses. This is how labor market alignment connects human capital development with long-term economic growth. It makes sure that money spent on education leads to genuine social and economic gains.

Labor market alignment bridges reforms like career guidance, hands-on

internships, and better links between schools and industries. As Mannan *et al.* (2023) explained, when education matches the needs of the job market, it helps people find jobs and supports long-term economic growth.

Consequently, it can be hypothesized that:

H4: Labor market alignment significantly contributes to economic growth

H5: Skill development positively affects labor market alignment.

H6: Literacy has a significant positive effect on labor market alignment.

3.8. Economic Development

Economic development is the process of making a society's total health and quality of life better. This includes not only higher incomes and economic output, but also better health, education, fairness, and access to opportunities. It is a bigger and more inclusive idea than just economic growth since it focuses on fair and long-lasting progress. There is a strong link between educational reform and economic growth because education gives people the knowledge, skills, and attitudes they need to be productive members of the economy. Reforms are needed when education systems are out of date or do not match the needs of the job market. These reforms make sure that graduates have the right skills, like technical, digital, and problem-solving skills. New curricula, vocational training, and STEM education that focus on quality, inclusion, and relevance are examples of educational innovations that can make the workforce more creative, flexible, and productive. This, in turn, leads to technological progress, new businesses, and social mobility, all of which help the economy grow over time. When more people are educated, skilled, and employed, the country sees higher productivity, better health, and less poverty (Abdullah & Yousuf, 2025; Islam, 2025).

Bangladesh has made some progress, but to keep moving forward, it must focus on both quality and fairness. As Raihan & Bourguignon (2024) warned, education that lacks equity or job relevance often fails, no matter the investment. However, educational reforms all aim to boost national economic growth (Paul & Thomas, 2025). Economic growth is not merely interrelated just on going to school, but on what people actually learn, how they use those skills, and whether everyone has a positive chance. Bangladesh's experience with education reform offers helpful lessons for other OIC countries trying to grow fairly and encourage innovation.

From the above literature, we can hypothesize that:

H7: Integrated STEM education positively affects labor market alignment.

H8: Labor market alignment mediates the relationship between skill development and economic growth.

H9: Labor market alignment mediates the relationship between literacy and economic

H10: Labor market alignment mediate the relationship between integrated skill development and economic growth.

3.9. Conceptual Framework

The conceptual framework of this study (Figure 2) holds that skill development (SD), literacy (LC), integration of STEM education (ISE) and labor market Alignment (LMA) mediate the effects of education on the economic development (ED), rather than acting directly. The framework also considers external modifying elements including policy coherence, rural-urban differences, and socioeconomic inequalities.

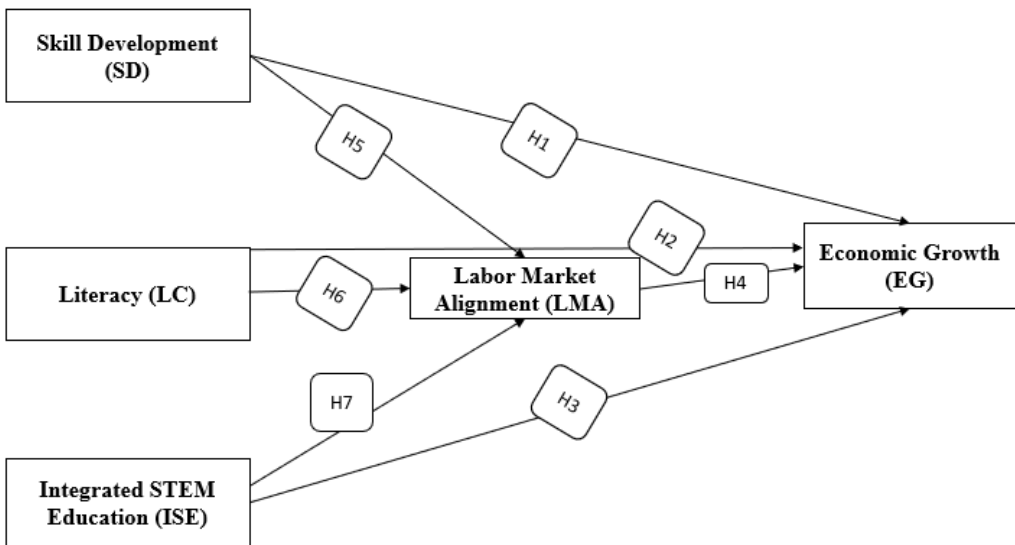


Figure 2. Conceptual Framework for Educational Reforms and Economic Growth

4. Methodology

This study used a two-phase mixed-methods approach of both qualitative and quantitative data to provide a complete assessment of the relationship of educational reform on economic development in Bangladesh. Phase one was qualitative study which explored stakeholder perspectives through policy analysis and interviews to understand implementation challenges, institutional barriers,

and contextual factors influencing the effectiveness of reforms. Phase two was a quantitative study which tested the hypotheses derived from human capital and endogenous growth theories using survey data.

For the qualitative stage, after examining key policy documents such as the National Education Policy 2010, World Bank and Asian Development Bank reports, and education sector plans, qualitative data was acquired through semi-structured interviews with practitioners. This data revealed the institutional dynamics influencing educational policy in Bangladesh, as well as challenges in implementation and perspectives on the success of change.

During the quantitative portion of this study, a cross-sectional survey design was employed to find out how educational changes affected Bangladesh's economic growth. A stratified random selection method was employed to make sure that all areas, both urban and rural, as well as all sectors, both public and private, and all industries were well represented in respondents, including teachers, policymakers, employers, and graduates. A survey was sent out to this sample to gather primary data. The survey asked about respondents' views on skill development, literacy, and the integration of STEM education, as well as labor market alignment and its role in economic development. Multi-item scales based on validated tools from the literature were used to measure the constructs. All items used a five-point Likert scale from strongly disagree to strongly agree. 400 responses were collected in total, from which 335 were considered usable legitimate data. SmartPLS and SPSS were employed to look at the direct, indirect, and mediating effects of the factors on the data. Cronbach's alpha, composite reliability, and Average Variance Extracted (AVE) were used to check the reliability and validity of the data. Path coefficients and p-values were used to test the ten proposed hypotheses.

4.1. Qualitative Study Results

4.1.1. Curriculum Modernization

Interviewees widely acknowledged that the modernization of the curriculum—emphasizing competency-based education, STEM content, and digital literacy—marked a significant advancement in aligning education with labor market needs. Interviewees particularly noted improvements in students' critical thinking and technological skills in urban areas where resources and teacher capacity were stronger. However, they also highlighted persistent disparities between urban and rural schools.

4.1.2. Teacher Preparedness

Teacher capacity emerged as a recurring concern. Although professional development initiatives were implemented, interviewees criticized these programs as being too short, overly theoretical, and disconnected from practical classroom needs. Many teachers, especially in rural schools, reported feeling unprepared to deliver the updated curriculum effectively. This echoes findings by Mannan & Maruf (2024) and Schweisfurth (2025), who noted that without adequate teacher support, curriculum reforms often fail to achieve their intended learning outcomes.

4.1.3. Technical and Vocational Education and Training (TVET)

The expansion of TVET was widely seen as one of the most impactful reforms, particularly in high-demand sectors such as garments, construction, and ICT. Industry representatives acknowledged that TVET graduates had better employability than their peers from general education streams. However, they also expressed dissatisfaction with graduates' soft skills, adaptability, and ability to cope with rapidly evolving technologies, a concern consistent with employer surveys that reported only 45% satisfaction with graduate competencies (Okiridu & Onwudike, 2024; Abdullah & Yousuf, 2025). These findings help explain the significant yet negative association found between skill development and labor market alignment in the quantitative phase, suggesting a mismatch between training provided and actual job market demands (Syed *et al.*, 2024).

4.1.4. Resource Allocation and Policy Priorities

Interviewees consistently noted that increased education spending had disproportionately prioritized infrastructure development and access, rather than enhancing teaching quality or learning outcomes. While improved enrolment rates and gender parity were lauded, stakeholders stressed that learning outcomes, particularly in literacy and numeracy, remained below desired levels, consistent with the concept of 'learning poverty' (Alkateb, 2024; Rahman *et al.*, 2026). This supports the finding that literacy showed no significant impact on labor market alignment in the quantitative results, indicating that access alone is insufficient without improvements in quality.

4.1.5. Labor Market Alignment

Industry stakeholders emphasized the persistent gap between graduates' skills and labor market needs. Despite reforms aimed at reducing this gap through curriculum modernization, STEM education, and TVET expansion, stronger collaboration between educational institutions and employers was deemed essential. As noted in previous studies (Khan, Xing, & Mahmood, 2024; Mhlanga,

2024; Sufi *et al.*, 2025), graduates often enter oversaturated sectors while high-growth industries remain underserved reflecting inadequate labor market forecasting and limited adaptability in educational planning.

4.2. Quantitative Analysis Results

The measurement model was assessed to ensure the reliability and validity of the constructs before testing the structural relationships. The constructs included Skill Development (SD), Literacy (LC), Integration of STEM Education (ISE), Labor Market Alignment (LMA), and Economic Development (ED), all measured through multi-item reflective indicators on a five-point Likert scale (Figure 3).

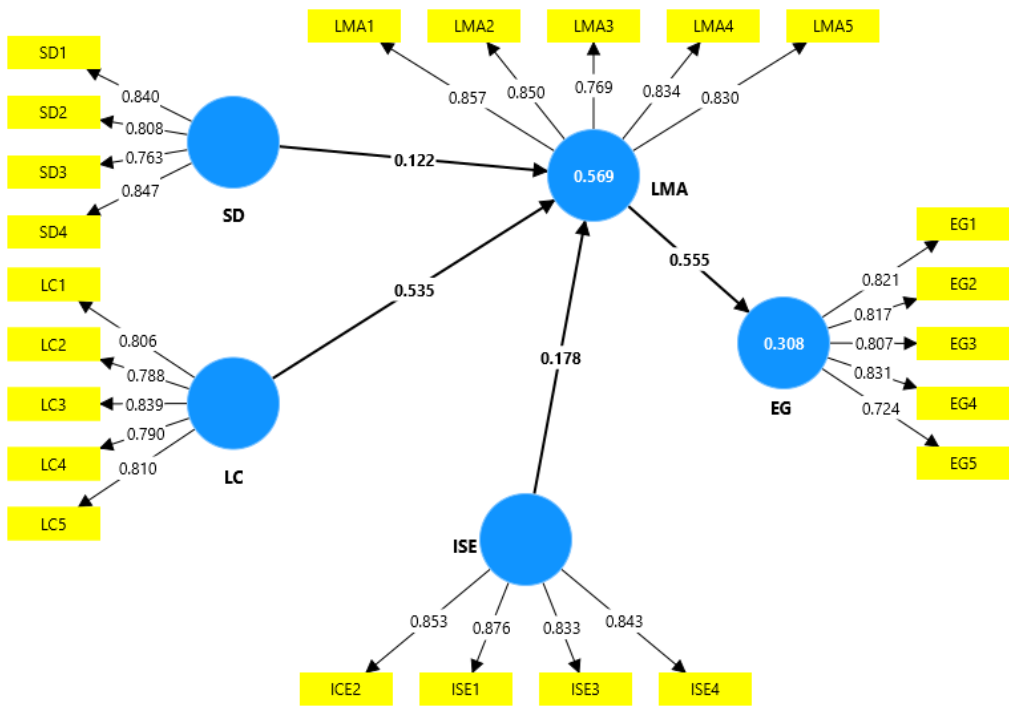


Figure 3. Measure Model of Educational Reforms and Economic Growth

The factor loadings of items were evaluated using cut-off values of 0.70 for factor loading and 0.50 for item reliability (Hair *et al.*, 2017). Factor loading signifies the relationship among the objects, whereas item dependability represents the squared loading of the items. No items were eliminated at this stage since they satisfy the 0.70 factor loading criterion (Table 1).

Table 1. Outer Loading

	EG	ISE	LC	LMA	SD
EG1	0.821				
EG2	0.817				
EG3	0.807				
EG4	0.831				
EG5	0.724				
ICE2		0.853			
ISE1		0.876			
ISE3		0.833			
ISE4		0.843			
LC1			0.806		
LC2			0.788		
LC3			0.839		
LC4			0.790		
LC5			0.810		
LMA1				0.857	
LMA2				0.850	
LMA3				0.769	
LMA4				0.834	
LMA5				0.830	
SD1					0.840
SD2					0.808
SD3					0.763
SD4					0.847

4.2.1. Reliability and Validity Tests of Data

Cronbach's alpha and composite reliability for all constructs exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency. AVE for each construct was above 0.50, confirming convergent validity. The composite reliability for all constructs reached the cut-off value of 0.60 and are between 0.888 and 0.916, as indicated in Table 2.

As a result, the structures' composite reliability provides a good evaluation. The convergent validity is decent when the AVE of each concept is estimated at 0.50. All constructs AVE in this investigation met the 0.50 cut-off estimate (Table 2).

Table 2. Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
EG	0.861	0.870	0.899	0.642
ISE	0.873	0.875	0.913	0.725
LC	0.866	0.867	0.903	0.651
LMA	0.885	0.886	0.916	0.687
SD	0.831	0.832	0.888	0.665

The discriminant validity test is a distinct type of validity assessment that examines if the indicators of one construct are unrelated to those of another construct (Chang & Chin, 2010). The study utilized the Fornell-Larcker criterion and the heterotrait-monotrait ratio to evaluate discriminant validity (Hair *et al.*, 2017).

Table 3: Heterotrait-Monotrait Ratio

	EG	ISE	LC	LMA
EG				
ISE	0.463			
LC	0.621	0.746		
LMA	0.628	0.671	0.837	
SD	0.595	0.621	0.799	0.676

The square root of AVE exceeds the correlations of interrelated constructs, as illustrated in Table 3. Consequently, the criteria for discriminant validity were satisfied. Discriminant validity between two reflective constructs is demonstrated when the heterotrait-monotrait score is below 0.90. The heterotrait-monotrait matrix demonstrates strong discriminant validity in this investigation, as all values are significantly below 0.90. In conclusion, the data's reliability and validity are satisfactory.

4.2.2. Structural Equation Modelling

After validating the measurement model, the structural model was evaluated to examine the proposed relationships. In Figure 4, the route coefficients, t-values (obtained through bootstrapping with 5,000 resamples), and p-values were assessed.

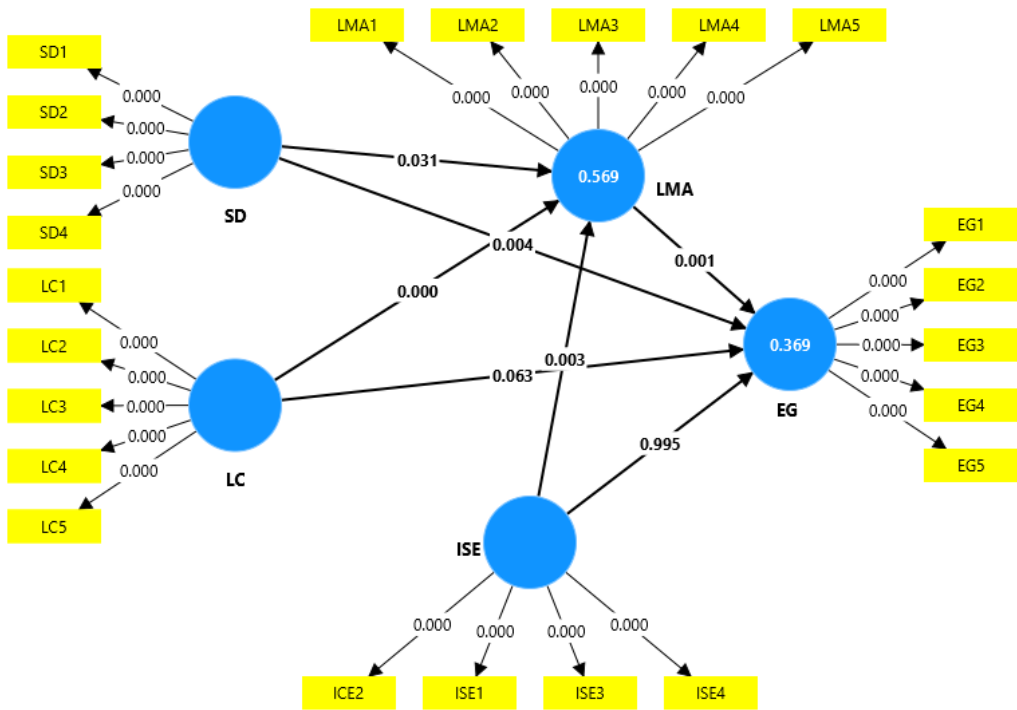


Figure 4. Structural Model of Educational Reforms and Economic Growth (Default Model using Bootstrapping Technique)

Table 4 displays the original sample, sample mean, standard deviation, T statistic result, and P value of the study based on the structural model's output. The results of hypothesis analysis were derived from the structural model.

Table 4. Test of Research Hypothesis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Findings
ISE -> EG	0.000	-0.000	0.069	0.007	0.995	Not Supported
ISE -> LMA	0.180	0.181	0.060	3.012	0.003	Supported
LC -> EG	0.173	0.172	0.093	1.859	0.063	Not Supported
LC -> LMA	0.534	0.532	0.061	8.756	0.000	Supported
LMA -> EG	0.303	0.303	0.089	3.419	0.001	Supported
SD -> EG	0.213	0.214	0.073	2.916	0.004	Supported
SD -> LMA	0.122	0.124	0.057	2.157	0.031	Supported

4.3. Hypothesis Test

Skill development has a significant effect on economic growth ($\beta\epsilon = 0.213$, $p < 0.05$) (Table 4), which supports hypothesis (H1). This is in line with Human Capital Theory (Becker, 2002) and research by Syed *et al.* (2024), which suggests that filling skill shortages and updating the curriculum can make workers more productive, which is good for the economy. Even though literacy has a beneficial effect on EG, it was not statistically significant ($\beta = 0.173$, $p = 0.063$), hence hypothesis two is not supported. This means that literacy is important, but it may not lead to growth on its own without increases in quality and work relevance. This is similar to Schweisfurth's (2025) criticism of learning poverty. ISE does not have a significant direct effect ($\beta = 0$, $p = 0.995$), which means that hypothesis three is not statistically supported. This could be because STEM curriculum is not being used well or is not reaching many students in remote or underfunded schools, even though they are theoretically important.

LMA has a big effect on EG ($\beta = 0.303$, $p < 0.01$), which supports hypothesis four (H4). This shows how important it is to make sure that education matches the needs of the job market (Mannan *et al.*, 2023). SD is a good and significant predictor of LMA ($\beta = 0.122$, $p < 0.05$), which supports hypothesis five. The statistical result could mean that there are some differences between what employers needed and what training provided (Okiridu & Onwudike, 2024).

LC has a significant effect on LMA ($\beta = 0.534$, $p < 0.001$), which supports hypothesis six of this study. Being literate makes it easier to get a job and communicate with coworkers, which improves job market fit (Bhuiyan, 2024). ISE improves LMA ($\beta = 0.180$, $p < 0.01$), which supports hypothesis seven. This is in line with research that shows how important STEM skills are for ICT and high-tech industries.

If we look at the statistics in Table 4, we can see that SD has an impact, on EG. This impact is actually negative which means that when SD goes up EG goes down. The numbers show this clearly with a probability of 0.038 and a change of -23.603 so we can say that SD really does affect EG in a way. SD is important here because it shows us what happens to EG when SD increases. So, when SD increases, we can expect EG to decrease. This significant yet negative correlation suggests that existing skill development programs may not adequately address the needs of the job market. This could be due to a concentration on outmoded skills, lack of employer engagement, or misallocation of training resources. On the other hand, the correlation between employment market and literacy ($p = 0.485$; $\beta = -4.370$) is not statistically significant. Labor market policy appears to have no effect on

literacy, a critical educational indicator. This discovery confirms the notion that labor market preparation and foundational literacy are distinct areas of transformation that require individual effort.

In case of integration of STEM education and its relationship with the labor market (p-value = 0.042; beta = 0.768), STEM curriculum boosts labor market relevance, particularly in sectors such as ICT, technology-driven industries, and scientific innovation, as indicated by a significant positive relationship. This suggests that STEM-integrated 21st-century competencies are critical for bridging education and employment gap. Economic growth brings the labor market into harmony. This could indicate transitory disruptions caused by poorly implemented improvements or systemic inefficiency. It is recommended that entrepreneurs receive technical training and that modifications accord with sector-specific demand estimates.

4.4. Mediation Testing

The mediation study aimed to ascertain whether labor market alignment mediates the relationship between skill development and economic growth, whether labor market alignment mediates the relationship between literacy and economic growth and whether labor market alignment mediates the relationship between integrated STEM education and economic growth. The research adhered to the three-step methodology proposed by Carranza *et al.* (2018), which involves evaluating the direct effect of the independent variable (SD, LC and ISE) on the dependent variable (LMA), the indirect effect of the independent variables (SD, LC and ISE) on the dependent variable (EG) through the mediator (LMA), and the relationship between the mediator (LMA) and the dependent variables (SD, LC and ISE).

Table 5. Mediating Path Estimation

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/ STDEV)	P values
SD -> LMA -> EG	0.037	0.038	0.022	1.687	0.092
ISE -> LMA -> EG	0.054	0.054	0.024	2.269	0.023
LC -> LMA -> EG	0.162	0.161	0.051	3.192	0.001

Hypothesis eight proposes a mediating relationship of LMA between SD and ED. According to table 5, the mediation effect is found to be favourable but not strong enough to support hypothesis eight ($\beta = 0.037$, $p = 0.092$). This means that skill development may not be aligned enough to adequately benefit the economy yet.

On the other hand, LMA has a role in LC's influence on EG ($\beta = 0.162$, $p < 0.01$),

which supports hypothesis nine. This shows that literacy helps growth more when it is focused on what the job market needs. LMA also has an effect on EG, caused by ISE ($\beta = 0.054$, $p < 0.05$), which supports H10. When STEM skills are clearly related to what businesses need, they have an economic benefit.

This means that integrated STEM education helps people get jobs that are more in line with what the job market wants, which in turn helps the economy expand. This shows how important STEM education is for giving graduates the skills they need to work in technology-driven and cutting-edge fields.

5. Discussion

The study found that educational reforms have had a significant impact on Bangladesh's economic growth. Curriculum reform resulted in measurable increases in STEM engagement and reading levels. However, antiquated evaluation techniques, discrepancies in teacher preparation, and urban-rural implementation divides limited the overall impact. Reports from national tests revealed that learning outcomes remain inconsistent despite progressive frameworks, particularly in rural institutions.

Increased education financing has had a beneficial influence on access indices. Gender equality was achieved in secondary schools, and net enrolment in elementary and secondary education neared nearly universal levels. Only one-third of grade five students meet the requisite numeracy skills, indicating that the quality of education remains poor. Budget analyses demonstrate that infrastructure takes precedence over learning-centered investments such as assessments and high-quality instruction.

The rise of TVET has had a considerable impact on employment outcomes, particularly in the ready-made garments sector, where productivity has increased dramatically. However, there is still a disconnect between training curriculum and real-world job expectations, as indicated by low industry satisfaction among TVET graduates. The slow rate of curriculum revision, and a lack of coordination between industry and institutions are important barriers.

Figure 5 shows the impact of educational reforms on Bangladesh's economy from 2000 until 2022. This directly answers the main question of this research: how have transformations within the education sector affected key indicators of the economy, such as GDP growth, labor productivity, and poverty rate in Bangladesh over the last two decades? It reflects how, following enhancements to Bangladesh's

education system, the GDP per capita rose—from a position of approximately USD 380 in year 2000 to more than USD 2,700 by year 2022 (Mahmud *et al.*, 2022). Concurrently, the poverty rate decreased from nearly 49% to just below 19% (Rasul & Nepal, 2025). These trends closely relate to Human Capital Theory, which suggests better education leads to greater individual productivity and, as a result, contributes to economic growth overall. The findings also back the idea of Endogenous Growth Theory, which suggests that elements from within a country, such as knowledge, innovation, and developing skills, keep the economy growing over time. In Bangladesh, changes like updating the curriculum, boosting education funding, and expanding technical and vocational training have played a key role in strengthening these homegrown factors of growth by making learning more accessible and enhancing skill development.

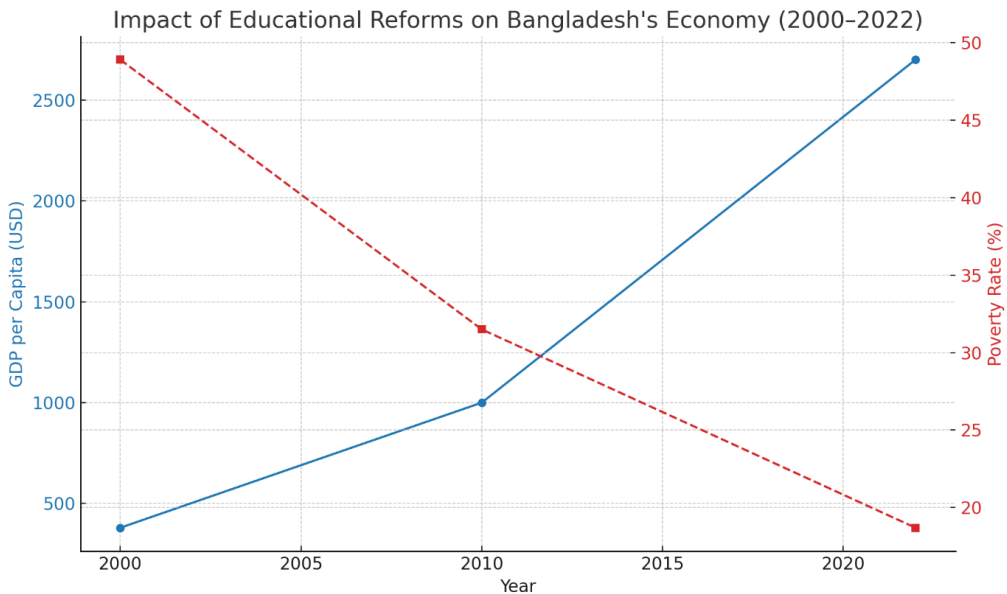


Figure 5. Impact of Educational Reforms on Bangladesh's Economy (2000-2022)

Moreover, the findings are in agreement with an emerging volume of evidence that points towards education investments as an economic boon. Studies by Jafarov (2025) and Leoni (2025) emphasized that education reforms are less vulnerable to reversal of their economic effects when they aim at accessibility as well as instruction quality. Findings of the current study also support hypotheses 4 and 5, which suggest that alignment of education labor markets is a significant pathway through which educational reforms facilitate economic advancement. Specifically, STEM education combined with digital literacy has enhanced graduates' employability in technology-focused and high-priority sectors. These findings concur with, whose

observations were that equipping students with suitable, modern skills significantly increases their employment readiness and supports national development goals. But as the graph and issues of national reports attest, setbacks in areas such as teacher shortages, poor rural rollout, and tightened assessment reforms have stalled development in some areas. These limitations confirm findings by researchers such as Schweisfurth (2025) and Okodugha *et al.* (2024), that inconsistent quality of education and poor institutional support often undermine reforms in developing countries.

Well-designed education reforms have played a major role in stabilizing Bangladesh's economy, as illustrated by the graph in Figure 5. The country has grown through poverty alleviation and building competent individuals by connecting education to jobs. However, the results also show that in order to continue expanding, Bangladesh must address the issues about regarding how reforms are implemented, make sure all areas are addressed equally, and develop stronger institutional support. This shows how there is a necessity for an open and flexible education policy that fits the local context, one which could inspire other OIC member countries to reform as well.

The quantitative findings contextualized and validated the mixed outcomes observed in the qualitative component of this study. While reforms have improved access, modernized curricula, and strengthened technical education pathways, their overall economic impact has been moderated by institutional bottlenecks, uneven implementation, and misalignment with labor market demands. These findings are consistent with prior research, emphasizing that the success of educational reforms depends not only on increasing access but also on improving quality, strengthening institutional capacity, and ensuring equitable resource distribution (Mhlanga, 2024; Mannan *et al.*, 2023; Schweisfurth, 2025).

6. Conclusion and Future Research

This study demonstrates that educational reforms in Bangladesh have significantly contributed to economic growth by enhancing human capital, aligning the labor market, and reducing poverty. Significant modifications, such as curriculum enhancement, the expansion of technical and vocational training, and the integration of STEM education, have facilitated access to education, fostered skill development, and increased employability, particularly in critical sectors like ICT and textiles. However, systemic issues such as inconsistent implementation, deficiencies in teacher proficiency, and disconnects between training and actual

labor market requirements have diminished the impact of these reforms. The findings indicate that for sustained economic growth, investments in education must be paired with enhanced quality, amplified institutional support, and alignment with labor market demands. Bangladesh's experience can assist other OIC nations in formulating equitable, comprehensive, and demand-driven educational policies to foster inclusive growth.

To learn more about how culture affects economic growth, future research should include a larger and more diverse group of people from other OIC member countries. Longitudinal and experimental research can look how educational reform change economy and livelihood.

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