

## Exploring Best Practices in Meeting Accreditation Standards for Academic Programs at Private Universities in Bangladesh

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### Abstract

*The higher education landscape in Bangladesh has experienced a notable increase in private universities over recent decades. These institutions play a crucial role in expanding access and addressing diverse student needs. However, ensuring and maintaining academic quality is paramount for these universities to thrive and contribute meaningfully. This research investigates curriculum design, teaching-learning activities, technological adoption, and assessment practices of four private universities to assess their alignment with Bangladesh Accreditation Council (BAC) standards. Employing a mixed-methods approach, data were collected from 398 students and 25 teachers through surveys and in-depth interviews. Descriptive analysis indicated above-average performance in curriculum ( $M = 3.6$ ,  $SD = 0.94$ ), teaching-learning activities ( $M = 3.58$ ,  $SD = 0.96$ ), technology integration ( $M = 3.53$ ,  $SD = 1.06$ ), and assessment practices ( $M = 3.66$ ,  $SD = 0.99$ ). Further, Partial Least Squares Structural Equation Modeling (PLS-SEM) revealed that assessment practices ( $\beta = 0.244$ ,  $p < 0.05$ ) and technology adoption ( $\beta = 0.207$ ,  $p < 0.05$ ) were the strongest predictors of university quality, with curriculum practices showing a moderate effect ( $\beta = 0.186$ ,  $p < 0.05$ ). Together, these constructs explained 47.8% of the variance in university quality ( $R^2 = 0.478$ ). The findings also highlighted persistent challenges such as undertrained staff, inadequate facilities, and faculty burnout, which undermine accreditation compliance. The study emphasizes outcome-based assessment and technology integration as critical determinants of institutional quality, with curriculum practices playing a supportive role. These insights provide actionable guidance for administrators, policymakers, and stakeholders seeking to strengthen accreditation readiness and elevate the international standing of Bangladesh's higher education sector.*

**Key words:** outcome-based education; accreditation standards; private universities of Bangladesh; higher education; quality curriculum design; teaching-learning activities; technological adaptation.

### 1. Introduction

The Higher Education (HE) landscape in Bangladesh has witnessed a significant rise in private universities in recent decades (Rahnuma, 2020). As of University Grants Commission

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(UGC) of Bangladesh, currently there are 114 listed private universities in Bangladesh (List of Private Universities| UGC, 2024). These institutions play a crucial role in expanding access to education and catering to the diverse needs of students. However, ensuring quality and maintaining academic rigor is paramount for these universities to thrive and contribute meaningfully. Accreditation serves as a vital mechanism in this context, providing external validation of an institution's adherence to established quality standards (Rahnuma, 2020). This exploratory study delves into exploring best practices (especially in areas like curriculum design, teaching-learning activities, technological adaptation, and assessment practice) employed by private universities in Bangladesh to effectively meet Bangladesh Accreditation Council's (BAC) accreditation standards for their academic programs. Furthermore, this study will explore the potential causal relationship between these best practices and the universities' ranking and reputation. By investigating these factors, the research seeks to contribute valuable insights that can significantly impact the quality of academic programs offered by private universities in Bangladesh. Ultimately, this exploration is expected to contribute to a more robust and internationally recognized higher education sector in Bangladesh.

The rapid rise of private universities in Bangladesh is a double-edged sword. While it increases access to education, concerns linger about quality and adherence to best practices (Blanco Ramirez & Jahirul Haque, 2016). To maintain the education quality and uphold good practices in HE, universities must adhere to the standards for accreditation of academic programs established by the BAC. The BAC is responsible for ensuring the necessary standards and requirements of universities' educational programs to produce competent and qualified graduates. However, it is frequently reported that universities in Bangladesh face challenges in designing and sustaining outcome-based education (OBE) curricula, implementing technology-enhanced teaching and learning, and adopting appropriate assessment methods to comply with the BAC's demands (Chowdhury, 2022; Sun & Lee, 2022; Jasim, 2021). Additionally, implementing technology-enhanced teaching and learning is also a challenge for many universities. While technology has the potential to enhance teaching-learning and provide students with opportunities for active and collaborative learning, many universities in Bangladesh lack the necessary infrastructure and resources to support the integration of technology in their academic programs (Khan et al., 2022). Furthermore, universities are facing challenges in adopting appropriate assessment methods to comply with the BAC's requirements. The BAC has emphasized the importance of using authentic, reliable, and valid assessment methods to ensure that students achieve the desired learning outcomes. However, many universities in Bangladesh are still relying on traditional assessment methods such as exams and quizzes, which may not effectively measure students' learning outcome. Furthermore, the combined impact of these challenges on a university's overall quality and national ranking remains unclear (Syeed et al., 2022). Therefore, in this study, in-depth research was conducted to explore effective teaching-learning strategies, best practices for BAC-aligned curriculum and assessment, the challenges faced by private universities in achieving quality education, and the ultimate impact on both university quality and student learning. This knowledge will be instrumental in improving the quality of HE offered by private universities in Bangladesh. The rapid proliferation of private universities

in Bangladesh has undoubtedly expanded access to higher education, yet concerns persist regarding the overall quality and adherence to established educational standards. The role of the BAC in maintaining educational quality and ensuring best practices is crucial. The BAC oversees the accreditation of academic programs, aiming to uphold rigorous standards that produce competent graduates. However, private universities in Bangladesh encounter notable challenges in several key areas essential for meeting accreditation requirements and enhancing educational outcomes. Implementing OBE curricula, integrating technology into teaching and learning, and adopting appropriate assessment methods are significant hurdles faced by these institutions. Firstly, many private universities struggle to design and sustain effective OBE frameworks that meet BAC's standards. Secondly, integrating technology into teaching and learning is pivotal for modern education. However, numerous private universities lack the necessary infrastructure and resources to fully leverage these technologies, hindering the potential benefits for students. Lastly, many private universities still heavily rely on traditional methods like exams and quizzes, which may not adequately measure desired competencies. The combined impact of these challenges on educational quality and national rankings of private universities warrants comprehensive investigation. Similar challenges are evident across the region. For instance, Sun and Lee (2020) documented the difficulties Malaysian private universities face in sustaining outcome-based education despite national policy support. Rahman and Uddin (2020) highlighted how private institutions in India struggle with limited resources and weak industry linkages, constraining their ability to deliver practice-oriented education. Likewise, Blanco Ramírez and Haque (2016) reported comparable quality assurance concerns in South Asian contexts, where rapid expansion of private higher education has often outpaced regulatory oversight. Against this regional backdrop, Bangladeshi private universities face compounded pressures—balancing rapid growth, limited infrastructure, and faculty shortages—underscoring the need for robust BAC-driven accreditation practices to enhance competitiveness and ensure international recognition. So, understanding effective teaching-learning strategies, best practices for curriculum development aligned with BAC standards, and the specific challenges hindering quality education delivery is essential. To this end, research into these areas will yield insights that can inform policy, pedagogy, and resource allocation to enhance the overall quality of higher education in private universities in Bangladesh. The objectives of this study can be outline below:

## General Objective

Improving higher education quality through assessing the academic practices of private universities in Bangladesh and their compliance with the accreditation standards set by the BAC.

## Specific Objectives

- A. To investigate the extent to which the curriculum of private universities aligns with the demands of accreditation bodies.
- B. To examine the teaching-learning activities used in private universities and their effectiveness in delivering quality education.

- C. To evaluate the use of technology in teaching and learning activities in private universities and its impact on students' academic performance.
- D. To assess the effectiveness of the assessment practices employed by private universities in ensuring that students meet the learning outcomes required by accreditation bodies.
- E. Explore the casual relationship between these factors and university quality and ranking.

## 2. Literature Review

In recent years, private universities in Bangladesh have grown in popularity, offering a variety of degree programs to meet the needs of the expanding number of students. However, it is a significant challenge to ensure that these universities provide a quality education that meets the requirements of the Bangladesh Accreditation Council. Utilizing recent research and in-text citations, this literature review examines the challenges and opportunities private universities in Bangladesh face in their efforts to provide quality education.

Private institutions in Bangladesh face significant hurdles due in large part to a shortage of skilled teachers and personnel. It has been reported by a study (Islam et. al, 2021) that it is difficult for private universities in Bangladesh to attract and keep excellent professors. The study concluded that private universities' ability to offer a wide range of academic programs and courses can be negatively affected by a lack of skilled faculty members. Since the expertise of the faculty is directly tied to the quality of education given, the shortage of qualified faculty members is a serious problem for private institutions in Bangladesh. This is especially crucial in light of the growing competition among schools for students and the consequent requirement for private universities to offer competitively high-quality programs and services.

Keeping up with rapidly evolving technological developments is a further challenge for private universities in Bangladesh. According to a study (Rahim & Hossain, 2020), private universities should invest more in technology and infrastructure to meet labor market demands. The study found that private universities frequently have limited financial resources, making it difficult for them to invest in cutting-edge infrastructure and technology. In order to deliver a quality education that is relevant to the needs of the job market, private colleges in Bangladesh must stay up with technological developments. The epidemic has brought to light the importance of digital learning, which has been growing in importance in recent years. Due to their smaller budgets, private institutions sometimes struggle to update their facilities with cutting-edge equipment and facilities.

A key challenge for private universities in Bangladesh is meeting the standards of the Bangladesh Accreditation Council. The council is responsible for ensuring that educational programs meet the required standards and produce competent and qualified graduates. Private universities need to adhere to these standards to be accredited and recognized by the government. According to [14], private institutions in Bangladesh have increased access to higher education, especially for students from low-income families (2019). Nonetheless, it can be difficult for private universities to conform to the accreditation council's requirements. This is because it is incumbent upon them to guarantee that their offerings are in line with council regulations and the needs of the labor market

Another challenge facing private universities in Bangladesh is the lack of engagement with the industry. According to a study by (Rahman & Islam, 2019), private universities in Bangladesh often lack engagement with the industry, which can limit the opportunities for students to gain practical experience and make connections with potential employers. The lack of industry engagement is a significant challenge for private universities in Bangladesh, as it can limit the opportunities for students to gain practical experience and make connections with potential employers. This can impact the employment prospects of graduates and limit the reputation of private universities in the eyes of the industry and potential employers.

The private university sector in Bangladesh has an opportunity to broaden access to higher education, especially for students from economically disadvantaged backgrounds. When compared to public colleges, private institutions offer a more comprehensive curriculum that better caters to the demands of its student body. Private institutions in Bangladesh have been crucial in providing access to higher education, say Hossain and Islam in (Hossain & Islam, 2021), especially for those who would not otherwise be able to attend a public university. There is a wide range of students attending private universities, from all walks of life and all corners of the globe, and this diversity has allowed these institutions to develop a wide range of academic programs and courses to accommodate them.

Innovation in the classroom is another area of opportunity for Bangladesh's private universities. In study (Rahman & Uddin, 2020) Rahman and Uddin argue that private institutions have been able to innovate in teaching and learning by introducing novel pedagogical practices and cutting-edge technological tools. The research showed that private colleges had more leeway to try out novel approaches to education than their public counterparts. If private colleges in Bangladesh want to keep up with the competition and offer a quality education relevant to the needs of the workforce, they must embrace innovation in the classroom. Online learning platforms and virtual reality simulations are two examples of how cutting-edge technology are being used to improve education and provide students with marketable skills and expertise.

Another opportunity for private universities in Bangladesh is building stronger partnerships with the industry, government, and other stakeholders. According to Ahmed, Amin, & Akhtar (2020), private universities can benefit from building stronger partnerships with the industry, government, and other stakeholders, which can help them to understand the needs of the job market and tailor their programs and courses accordingly. Building stronger partnerships with the industry, government, and other stakeholders is essential for private universities in Bangladesh to provide quality education that meets the needs of the job market. This can help students to gain practical experience, make connections with potential employers, and enhance their employability after graduation.

Finally, private universities in Bangladesh have the opportunity to improve their quality assurance mechanisms to ensure that they meet Bangladesh Accreditation Council standards. According to a study (Rahman, M. M., & Islam, M. R. 2019), private universities must invest in quality assurance mechanisms to ensure that their programs and services align with the council's guidelines and meet labor market demands. Improving quality assurance mechanisms

is essential for private universities in Bangladesh to ensure that they meet Bangladesh Accreditation Council standards and provide students with a high-quality education. This can help improve the reputation of private universities and graduates' employment opportunities. It is evident that private universities in Bangladesh have a lot of opportunities, however, they are facing a number of challenges in meeting the high standards set by the Bangladesh Accreditation Council. So, it needs depth understanding and investigation to identify the root influencing factors of these issues and potential way-outs.

### 3. Methodology

#### 3.1. Study design and settings

To gain a more comprehensive understanding of the research questions and meet the objectives, this study adopted the mixed-method concurrent triangulation research design where both quantitative and qualitative data were collected concurrently with equal priority (Creswell & Clark, 2017; Castro et al., 2010). Here, the key purpose was to confirm and cross-validate the findings generated by each method through evidence produced by the other (Terrell et al., 2012). The data collection was conducted between 1st February and 29th February, 2024 in 4 different private universities in Bangladesh (Daffodil International University, City University, Eastern University, and Manarat International University). These universities were selected based on their rankings in the QS World University Rankings (Asia 2024) and uniRank Top Universities in Bangladesh (2024). The rationale behind choosing these universities was to investigate curriculum practices, teaching methods, assessment practices, and the challenges faced by different-ranked private universities in adopting BAC standards.

#### 3.2. Target population and sampling

In this study, the target population comprises university-level students and teachers from the Engineering faculty and the Science and Information Technology faculty, as these departments generally adhere to the BAC standard for their teaching and learning. According to the 49th Annual Report (2022) of UGC, the total number of students and teachers in private universities is 341,098 and 16,508, respectively. Among them, the total number of students from the aforementioned faculties is 156,576. However, the exact number of teachers from these faculties is unclear. To determine the required sample size for the quantitative phase of this study, which involves survey questionnaires from students, we utilized Cochran's Sample Size Formula (see Formula 3.1). Given the relatively large total number of students, Cochran's formula was deemed appropriate and has been suggested by previous studies. The calculated sample size was 385, with a precision level of 5%, a confidence level of 95%, a Z- value of 1.96, and an estimated population proportion of 50%.

$$N = \frac{Z^2 * p * q}{e^2} \dots \dots \dots (Formula 3.1)$$



instrument covered a broad spectrum of topics, including students' demographic details and their lived experiences within the classroom settings. Specifically, the questionnaire probed into the alignment of the curriculum with accreditation body demands, the effectiveness of teaching-learning activities, the integration of technology in education, and the assessment practices employed by private universities. By engaging students directly through this survey, a holistic perspective on the various facets of academic practices was obtained.

Simultaneously, individual in-depth interviews were conducted with teachers. These interviews were designed to delve deeper into the educators' experiences, perspectives, and challenges related to complying with the accreditation standards set by BAC. The interviews aimed to extract rich qualitative insights, offering a more profound understanding of the subject matter. Teachers were encouraged to share their viewpoints on curriculum alignment, teaching methodologies, technology adaptation in the classroom, and their experiences with assessment practices.

### 3.4. Validity and reliability of the data collection instruments

The validity and reliability of the quantitative data collection instrument (survey questionnaire) were confirmed by content validity and internal consistency reliability, respectively. Content validity was assessed through the judgment method, following the guidance of Haynes et al. (Haynes et al., 1995), involving a panel of 5 experts drawn from the fields of education and pedagogy. These experts utilized a 5-point rating scale to evaluate the questionnaire along dimensions such as relevance, representativeness, specificity, and clarity. To gauge expert consensus, Cohen's coefficient kappa ( $\kappa$ ) was employed (see formula 3.3), in accordance with the method outlined in (Ahmmed et al., 2022; Boateng et al., 2018).

$$\kappa = \frac{p_o - p_e}{1 - p_e} \dots \dots \dots (Formula 3.3)$$

Here,  $\kappa$  is the Cohen's kappa statistic,  $P_o$  = the relative observed agreement among raters,  $P_e$  = the hypothetical probability of chance agreement.

The average calculated kappa ( $\kappa$ ) value for the dimensions (relevance, representativeness, specificity, and clarity) of the questionnaire were found to be .84, with a significance level of <0.05, signifying a good level of agreement (McHugh, 2012). Additionally, the internal consistency reliability of the survey questionnaire was evaluated using Cronbach's alpha coefficient (see Formula 3.4). Internal consistency describes the extent to which the items in questionnaire are connected to the inter-relatedness of the items within the test.

$$\alpha = \frac{N \bar{c}}{\bar{v} + (N-1) * \bar{c}} \dots \dots \dots (Formula 3.3)$$

Here,  $N$  is equal to the number of items,  $\bar{c}$  is the average inter-item covariance among the items and  $\bar{v}$  equals the average variance.

The results demonstrated that the average Cronbach's alpha coefficient for the questionnaire is .87, indicating an acceptable level of internal consistency reliability (Kawakami et al.,

2020). On the other hand, for the qualitative data collection instrument (IDI), a data source triangulation approach was adopted to enhance their validity and trustworthiness (Noble & Heale, 2019; Ahmmed et al., 2022;). To ensure data source triangulation we considered diverse data sources to study the phenomenon and research questions of this study. This approach was employed to enhance the credibility, validity, and reliability of the qualitative findings.

### **3.5. Data collection sources and procedure**

Prior to commencing extensive data collection, a preliminary pilot study was undertaken to ascertain the practicality and effectiveness of the data collection methods, data analysis techniques, and overall research design. The primary objectives of this pilot study were to pinpoint and rectify potential issues, such as vague survey questions, in-depth interview difficulties, or technical glitches. As part of this process, a survey questionnaire was administered to 20 students, and in-depth interviews were conducted with 3 teachers. In response to the valuable feedback received from these participants, necessary modifications were made to enhance the clarity and comprehensibility of all questions. This involved, in particular, refining the language used and incorporating locally relevant terms to ensure a better understanding.

Later, a total of 4 data collectors (DCs) were hired for the study. Prior to the data collection, two of our experts conducted a comprehensive day-long training, to prepare the DCs for gathering valuable insights. The training program encompassed various aspects, including lectures on understanding the survey questionnaire, and conducting in- depth interview of participants. These activities allowed the trainees to practice asking relevant questions and develop their interviewing skills. Following the training, the DCs were evaluated based on their performance, and 2 groups were formed. Each group consisted of one moderator (teacher) and two data collectors, ensuring a well-rounded team for effective data collection.

The primary data for this study was collected between 1<sup>st</sup> February and 29<sup>th</sup> August, 2023. The data collection took place in private 4 universities (DIU, CU, EU, and MIU).

### **3.6. Statistical Analysis**

The data analysis was conducted in two phases. The first phase involved quantitative analysis including suitable descriptive analysis and ANOVA tests utilizing IBM SPSS Statistics 26 (IBM Corp, 2019). Additionally, PLS-SEM, a sophisticated second-generation multivariate analysis method (Hair et al., 2016), was employed using SmartPLS4 (Ringle et al., 2022) to examine the factors impacting university quality and ranking. PLS-SEM, a variance-based method for estimating structural equation models, comprises of two models: the measurement model (also referred to as the outer model) and the structural model (also known as the inner model) (Hair et al., 2016). This technique is widely used in exploratory research to develop theories and analyze the complex relationships among multiple variables (Ahmmed, Saha, & Tamal, 2022; Hair et al., 2019, 2021). The use of PLS- SEM in this study is justified due to its flexibility in exploring and experimenting with various configurations. Moreover, as noted in (Ahmmed, Saha, & Tamal, 2022), PLS-SEM is a more appropriate choice compared to other methods, such as CB-SEM, when the objective is to predict the key “driver” constructs.

On the other hand, in the second phase, qualitative data were thematically coded and analyzed manually in accordance with recommended study procedures. Additionally, frequencies and percentages analyses were conducted to further explore the data.

### **3.7. Ethical considerations**

The necessary ethical approval, denoted as DIU/FGS/NAEM/1, was duly obtained from the relevant institutional authorities, alongside the requisite consent from other participant universities. An essential aspect of this research is the researcher's responsibility to uphold the rights, needs, values, and desires of the informants, which is of heightened significance given the prominent positions and affiliations of the informants in this study. To safeguard the rights of the informants, several measures were diligently implemented:

- **Clear Communication of Research Objectives:** The research objectives were clearly and comprehensively communicated to the informants, both verbally and in writing. This included a concise explanation of how their data would be utilized.
- **Informed Consent:** In instances where it was necessary, the researcher obtained either oral or written consent from the informants before proceeding with the study.

## **4. Conceptual framework and hypothesis development**

In this study, based on literature review, a theoretical model is proposed and tested to investigate the predictive factors of university quality (reputation and ranking). As evident in Figure 1, the model includes five constructs where four are hypothesized to influence (positively or negatively) university quality (UQ) namely: (i) curriculum practices (EI), (ii) teaching-learning activities (TLA), (iii) technology adaptation (TA), (iv) assessment practices (AP), and university quality (UQ). Of these five constructs, four (i-iv) are exogenous (independent) constructs while UQ is endogenous (dependent) construct. The selection of these constructs and their proposed directional relationships within the model are supported by existing theoretical considerations (for details see literature review chapter). Hence, the study hypotheses can be formed as follows: Ha: OBE-based curriculum practice is positively associated with UQ, Hb: OBE-based teaching-learning activities is positively associated with UQ, Hc: OBE-based technology adaptation in teaching learning is positively associated with UQ, Hd: OBE-based assessment practice is positively associated with UQ.

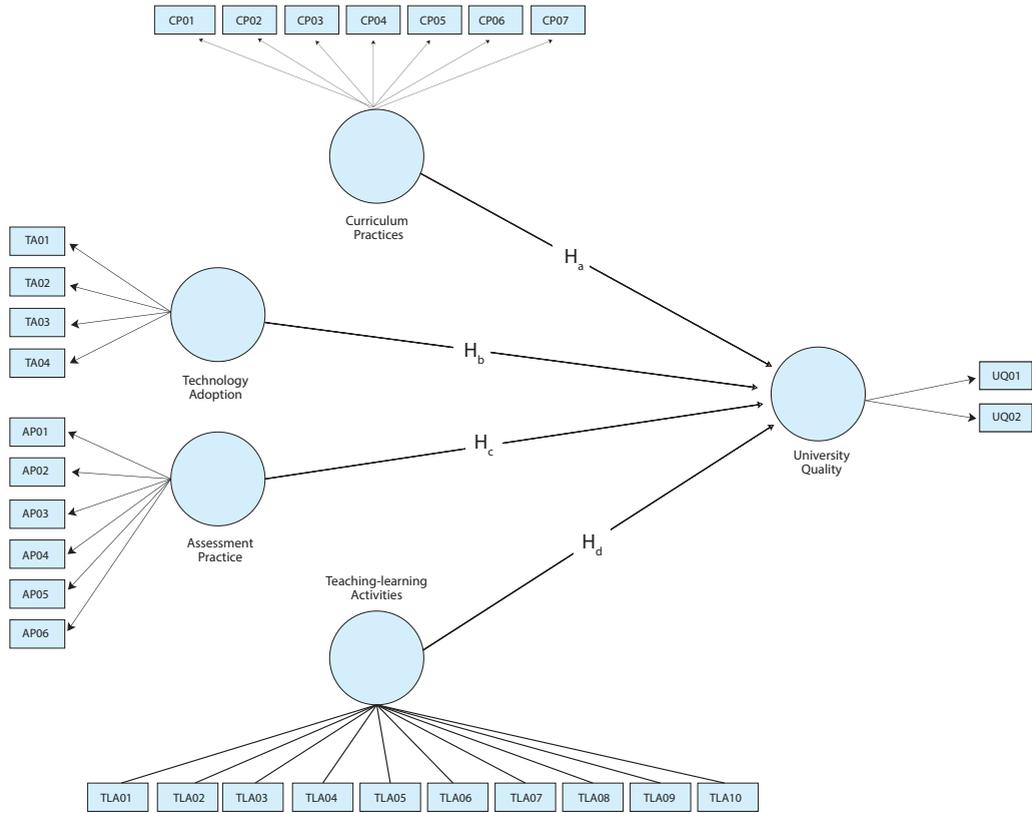


Figure 1. Conceptual framework

## 5. Results

### 5.1. Demographic information

The key participants of this study are university-level students (N=398) and teachers (N=25) from the Engineering faculty and the Science and Information Technology faculty. Table 2 presents the detailed demographic information of the students. The age of the students ranged from 18 to 26 years where the mean age was 21.97 years (Std. Deviation= 1.461). Majority of the student participants were male (82.9%), while 17.1% were female. On the other hand, majority of the students were from 1<sup>st</sup> and 2<sup>nd</sup> year (77.1%), while 22.9% students were from 3<sup>rd</sup> and 4<sup>th</sup> year. Mainly students from three departments participated in this study, CSE (66.8%), EEE (26.6%), and SWE (6.5%).

On the other hand, 25 teachers from different 6 private and public universities of Bangladesh were also participated in this study. Table 3 presents the detailed overview.

**Table 2.** Demographic information (Student)

Profile	Frequency (N=398)	Percent
<b>Age</b>		
<=20	77	19.35%
21-22	174	43.72%
23-24	144	36.18%
25>=	3	0.75%
<b>Gender</b>		
Male	330	82.9%
Female	68	17.1%
<b>Year Level</b>		
1 <sup>st</sup>	106	26.6%
2 <sup>nd</sup>	201	50.5%
3 <sup>rd</sup>	87	21.9%
4 <sup>th</sup>	4	1.0%
<b>Department</b>		
CSE	266	66.8%
EEE	106	26.6%
SWE	26	6.5%

**Table 3.** Demographic information (Teacher)

Profile	Frequency (N=398)	Percent
<b>Age</b>		
<=30	3	12%
31-35	7	28%
36-40	5	20%
41-45	6	24%
45>	4	16%
<b>Gender</b>		
Male	16	64%
Female	9	36%
<b>Years of Experience</b>		
<5	3	12%
5-10	13	52%
11-15	5	20%
16>	4	16%
<b>Department</b>		
CSE	9	36%
EEE	8	32%
SWE	5	20%
NFE	2	8%
ESDM	1	4%

## 5.2 Curriculum practices

In accordance with the Bangladesh Accreditation Council (BAC), the curriculum for higher education must be outcome-based and aligned with the qualifications framework (QF) of Bangladesh. It should be comprehensive enough to provide guidance to faculty and students for the systematic achievement of learning outcomes. To gain insight into current practices at private universities, we conducted a survey asking students seven different questions to gauge their opinions based on BAC's Standard 4 (criteria 4.1 to 4.9). The findings revealed that overall curriculum practices were above average (Mean = 3.6, Standard Deviation = 0.94). However, a One-Way ANOVA analysis indicated that universities with higher rankings exhibited significantly better levels of curriculum implementation (See Table 4).

**Table 4.** One-Way ANOVA (curriculum practice)

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
DIU	CU	1.09*	.09	.00	.91	1.26
	EU	1.12*	.14	.00	.83	1.40
	MIU	1.61*	.10	.00	1.41	1.82
CU	DIU	-1.09*	.09	.00	-1.26	-.91
	EU	.03	.16	.85	-.28	.34
	MIU	.53*	.12	.00	.28	.77
EU	DIU	-1.12*	.14	.00	-1.40	-.83
	CU	-.03	.16	.85	-.34	.28
	MIU	.50*	.17	.00	.17	.83
MIU	DIU	-1.61*	.10	.00	-1.82	-1.41
	CU	-.53*	.12	.00	-.77	-.28
	EU	-.50*	.17	.00	-.83	-.17

\*. The mean difference is significant at the 0.05 level.

## 5.3. Teaching-learning activities

According to the BAC (Board of Accreditation for Colleges), teaching and learning practices should be systematic, innovative, practice-oriented, and motivating to support the achievement of learning outcomes, while fostering a sense of responsibility and ethical practices.

To gain insights into the current teaching and learning practices in private universities, we conducted a survey where students responded to ten questions related to BAC's Standard 5 (criteria 5.1 to 5.9). The findings revealed that the overall curriculum practices were above average (Mean = 3.58, Standard Deviation = 0.96). However, a One-Way ANOVA analysis demonstrated that universities with higher rankings exhibit significantly better teaching and learning activities and practices (see Table 5).

**Table 5.** One-Way ANOVA (teaching-learning activities)

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
DIU	CU	1.0584*	.0926	.000	.876	1.240
	EU	1.1366*	.1480	.000	.846	1.428
	MIU	1.7813*	.1068	.000	1.571	1.991
CU	DIU	-1.0584*	.0926	.000	-1.240	-.876
	EU	.0782	.1625	.631	-.241	.398
	MIU	.7229*	.1262	.000	.475	.971
EU	DIU	-1.1366*	.1480	.000	-1.428	-.846
	CU	-.0782	.1625	.631	-.398	.241
	MIU	.6447*	.1710	.000	.308	.981
MIU	DIU	-1.7813*	.1068	.000	-1.991	-1.571
	CU	-.7229*	.1262	.000	-.971	-.475
	EU	-.6447*	.1710	.000	-.981	-.308

\*. The mean difference is significant at the 0.05 level.

#### 5.4. Technology-driven teaching-learning

According to BAC, the availability and access to appropriate and adequate facilities and resources, such as technology, necessary for effective teaching and learning, is crucial. To investigate the current adoption of technology in teaching and learning at private universities, we surveyed students using four different questions aligned with BAC's Standard 8 (criteria 8.1, 8.2, and 8.4). The findings revealed that overall technology adoption in teaching and learning was above average (Mean = 3.53, Standard Deviation = 1.06). However, a One-Way ANOVA analysis showed that universities of higher ranking significantly demonstrated better technology adoption in teaching and learning practices (see Table 6).

**Table 6.** One-Way ANOVA (technology-driven teaching-learning)

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
DIU	CU	1.31*	.10	.00	1.12	1.51
	EU	1.14*	.16	.00	.83	1.45
	MIU	1.91*	.11	.00	1.69	2.13
CU	DIU	-1.31*	.10	.00	-1.51	-1.12
	EU	-.17	.17	.33	-.51	.17
	MIU	.60*	.13	.00	.33	.86

EU	DIU	-1.14*	.16	.00	-1.45	-.83
	CU	.17	.17	.33	-.17	.51
	MIU	.77*	.18	.00	.41	1.13
MIU	DIU	-1.91*	.11	.00	-2.13	-1.69
	CU	-.60*	.13	.00	-.86	-.33
	EU	-.77*	.18	.00	-1.13	-.41

\*. The mean difference is significant at the 0.05 level.

### 5.5. Assessment practice

According to BAC, assessment practices should involve practical evidences, initiate critical thinking and inspire students to apply acquired knowledge in the real-life situations. To investigate the current assessment practice at private universities, align with the guideline of BAC, we surveyed students using six different questions aligned with BAC's Standard 5 (criteria 5.1 to 5.8). The findings revealed that overall assessment practice was good (Mean = 3.66, Standard Deviation = .99). However, a One-Way ANOVA analysis showed that universities of higher ranking significantly demonstrated better assessment practice (see Table 7).

**Table 7.** One-Way ANOVA (assessment practice)

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
DIU	CU	1.08*	.09	.00	.90	1.26
	EU	1.24*	.15	.00	.96	1.53
	MIU	1.90*	.11	.00	1.69	2.11
CU	DIU	-1.08*	.09	.00	-1.26	-.90
	EU	.17	.16	.30	-.15	.48
	MIU	.82*	.12	.00	.57	1.06
EU	DIU	-1.24*	.15	.00	-1.53	-.96
	CU	-.17	.16	.30	-.48	.15
	MIU	.65*	.17	.00	.32	.99
MIU	DIU	-1.90*	.11	.00	-2.11	-1.69
	CU	-.82*	.12	.00	-1.06	-.57
	EU	-.65*	.17	.00	-.99	-.32

\*. The mean difference is significant at the 0.05 level.

### 5.6. Challenges in meeting the demands of the accreditation bodies

Accreditation is vital for ensuring quality education and upholding international standards. However, Higher Educational Institutions (HEIs) in Bangladesh frequently encounter numerous challenges in meeting the requirements of accreditation bodies. To shed light on these obstacles, we sought the opinions of academicians regarding these issues. Figure 2 displays a bar chart highlighting the commonly faced challenges. The findings

underscore a domino effect caused by these challenges. Insufficiently trained staff members find it challenging to implement best practices, while limited facilities constrain the learning environment, and teacher burnout negatively impacts student outcomes. Collectively, these factors make it difficult for institutions to achieve accreditation standards.

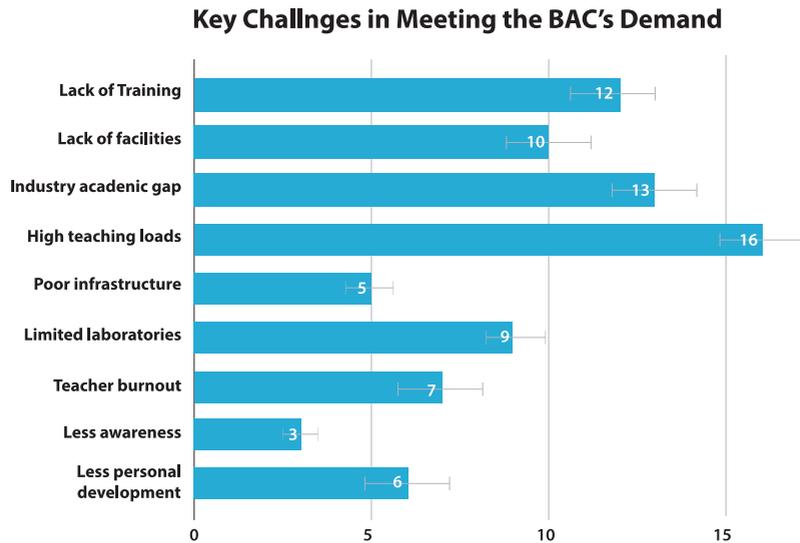


Figure 2. Key challenges

## 5.7. Factors influencing the university quality

To explore the factors influencing the overall university quality, we utilized Partial Least Squares Structural Equation Modeling (PLS-SEM). The initial step in analyzing PLS-SEM results involves evaluating the measurement model. To do so, composite reliability is employed to ensure internal consistency reliability. On the other hand, convergent validity is assessed through the utilization of average variance extracted (AVE), while discriminant validity is evaluated using the Fornell-Larcker, Heterotrait-monotrait ratio, and cross loadings criterion.

### 5.7.1. Measurement model evaluation

#### A. Internal consistency reliability

Internal consistency refers to the similarity or homogeneity among observed indicator variables. In assessing internal consistency reliability, Cronbach’s alpha is traditionally used. This index estimate’s reliability based on the inter-correlations of observed indicators, assuming equal reliability and loadings on the construct. In contrast, PLS-SEM prioritizes indicators based on their individual reliability, using composite reliability as the recommended criterion. Studies suggest that composite reliability values between

0.60 and 0.70 are acceptable in exploratory research, while values between 0.70 and 0.90 are considered satisfactory (Antora et al., 2024; Ahmmed, Saha, & Tamal, 2022;). Our analysis (see Table 8) shows that all constructs exceed the recommended threshold ( $\geq 0.60$ ), indicating sufficient internal consistency reliability in the measurement model.

**Table 8.** Validity and reliability (measurement model)

Constructs	Items	Convergent Validity					Internal consistency reliability	
		Std. Dev.	Mean	Loading	AVE	P Value	Composite reliability (rho_a)	Composite reliability (rho_c)
Curriculum Practices	CP01	0.02	0.793	0.793	0.603	0.000	0.911	0.927
	CP02	0.014	0.828	0.828		0.000		
	CP03	0.018	0.805	0.805		0.000		
	CP04	0.021	0.783	0.783		0.000		
	CP05	0.014	0.83	0.830		0.000		
	CP06	0.021	0.792	0.792		0.000		
	CP07	0.017	0.786	0.786		0.000		
Technology Adoption	TA01	0.014	0.833	0.833	0.901	0.000	0.867	0.909
	TA02	0.018	0.832	0.832		0.000		
	TA03	0.012	0.874	0.874		0.000		
	TA04	0.015	0.84	0.840		0.000		
Assessment Practice	AP01	0.018	0.808	0.808	0.609	0.000	0.933	0.940
	AP02	0.022	0.764	0.764		0.000		
	AP03	0.025	0.768	0.768		0.000		
	AP04	0.018	0.796	0.796		0.000		
	AP05	0.026	0.738	0.738		0.000		
	AP06	0.019	0.785	0.785		0.000		
Teaching-learning Activities	TLA01	0.018	0.804	0.804	0.967	0.000	0.982	0.983
	TLA02	0.017	0.816	0.816		0.000		
	TLA03	0.024	0.739	0.739		0.000		
	TLA04	0.019	0.788	0.788		0.000		
	TLA05	0.019	0.768	0.768		0.000		
	TLA06	0.023	0.71	0.710		0.000		
	TLA07	0.018	0.78	0.780		0.000		
	TLA08	0.017	0.815	0.815		0.000		
	TLA09	0.017	0.789	0.789		0.000		
	TLA10	0.019	0.789	0.789		0.000		
University Quality	UQ01	0.002	0.98	0.981	0.967	0.000	0.982	0.983
	UQ02	0.001	0.97	0.986		0.000		

### A. Convergent validity

Convergent validity refers to how well a measure correlates positively with other measures of the same construct. To assess convergent validity, researchers often use outer loadings of indicators and average variance extracted (AVE). Typically, indicators should have outer loadings of 0.70 or higher. Indicators with loadings between 0.40 and 0.70 can be removed if doing so improves composite reliability. In this study, all the indicators met the 0.70 threshold. For AVE, constructs should ideally be 0.50 or higher. In this analysis, all the constructs surpassed this threshold, indicating that each explains over 50% of its indicators' variance. Thus, the measurement model meets the required level of convergent validity.

## B. Discriminant validity

Discriminant validity, a critical component of construct validity, assesses how well a construct can be distinguished from other constructs. Its primary goal is to ensure that a reflective construct shows stronger correlations with its own indicators compared to those with indicators of other constructs. Scholars commonly use the cross-loadings, Fornell-Larcker criterion, and Heterotrait-monotrait ratio to evaluate discriminant validity. Here, cross-loadings demonstrate that each indicator correlates more strongly with its associated construct than with any other construct. In Table 9, all indicators surpassed the suggested threshold, confirming the discriminant validity of the reflective construct.

**Table 9.** Cross loading

	Assessment Practice	Curriculum Practice	Teaching Learning Activities	Technology Adaptation	University Quality
AP01	0.808	0.732	0.745	0.744	0.506
AP02	0.764	0.692	0.703	0.682	0.492
AP03	0.768	0.681	0.687	0.659	0.544
AP04	0.796	0.661	0.682	0.629	0.517
AP05	0.738	0.644	0.642	0.596	0.441
AP06	0.785	0.652	0.694	0.656	0.563
CP01	0.722	0.793	0.737	0.704	0.452
CP02	0.693	0.828	0.767	0.705	0.540
CP03	0.695	0.805	0.758	0.760	0.494
CP04	0.708	0.783	0.726	0.667	0.513
CP05	0.736	0.830	0.744	0.716	0.563
CP06	0.663	0.792	0.714	0.708	0.523
CP07	0.682	0.786	0.704	0.718	0.608
TA01	0.698	0.739	0.733	0.833	0.563
TA02	0.743	0.763	0.769	0.832	0.537
TA03	0.755	0.752	0.781	0.874	0.557
TA04	0.683	0.741	0.720	0.840	0.563
TLA01	0.712	0.761	0.804	0.724	0.484
TLA02	0.739	0.751	0.816	0.722	0.601
TLA03	0.647	0.706	0.739	0.660	0.343
TLA04	0.700	0.735	0.788	0.689	0.433
TLA05	0.710	0.697	0.768	0.705	0.579
TLA06	0.634	0.597	0.710	0.612	0.493
TLA07	0.702	0.712	0.780	0.676	0.539
TLA08	0.702	0.748	0.815	0.720	0.467
TLA09	0.683	0.723	0.789	0.715	0.541
TLA10	0.711	0.724	0.789	0.702	0.567
UQ01	0.603	0.603	0.592	0.597	0.981
UQ02	0.697	0.692	0.697	0.689	0.986

In this study, we also used the Fornell-Larcker criterion, it is also effective, involving the comparison of the square root of the average variance extracted (AVE) for each construct with its correlations with others in the model. For discriminant validity, the square root of

a construct's AVE should exceed its highest correlation with any other construct Table 10 supports this criterion.

**Table 10.** Fornell-Larcker criterion

Constructs	AP	CCP	TLA	TA	UQ
AP	0.777				
CP	0.871	0.803			
TLA	0.891	0.916	0.781		
TA	0.852	0.886	0.888	0.845	
UQ	0.660	0.662	0.660	0.657	0.983

#### 4.7.2. Structural model evaluation

After validating the measurement model, the next step in PLS-SEM analysis is to evaluate the structural model. The main goal at this stage is to assess the model's predictive power and the connections between constructs. Key assessment criteria for evaluating the structural model, as suggested by prior research comprise collinearity assessment, evaluation of path coefficients, and determination of the coefficient of determination (R<sup>2</sup>) (Antora et al., 2024).

##### A. Collinearity assessment

In assessing the path coefficients of the structural model using OLS regressions, it's crucial to address any collinearity issues to avoid biased regression results. Collinearity is assessed through the variance inflation factor (VIF) for each construct. To mitigate collinearity concerns, prior studies (Antora et al., 2024; Ahmmed, Saha, & Tamal, 2022; Hair et al., 2019, 2021) suggest ensuring that the construct's tolerance (VIF) value is above 0.20 and below 5. Table 11 demonstrates that all constructs' VIF values fall within this recommended range, indicating the absence of collinearity issues in the structural model.

**Table 11** Collinearity assessment

Constructs	VIF
Assessment Practice -> University Quality	5.01
Curriculum -> University Quality	4.676
Teaching Learning Activities -> University Quality	4.781
Technology -> University Quality	4.822

##### B. Path coefficients and Coefficient of determination (R<sup>2</sup>)

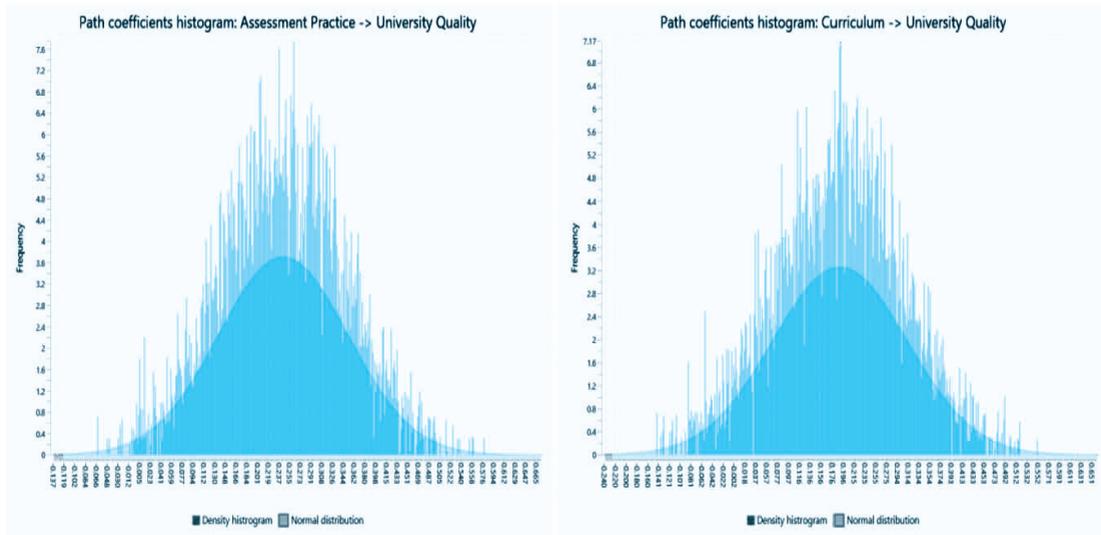
The path coefficients of the structural model were assessed using bootstrapping with 5000 sub-samples, employing a two-tailed test at a significance level of 0.05. As depicted in Table 12 and Figure 4, all proposed relationships were statistically significant except one. OBE-based Assessment Practice ( $\beta = 0.244$ ,  $t = 2.262$ ,  $p < 0.05$ ) and Technology Adaptation ( $\beta = 0.207$ ,  $t = 2.022$ ,  $p < 0.05$ ) emerged as the strongest predictors, where curriculum practice ( $\beta = 0.186$ ,  $t = 1.54$ ,  $p < 0.05$ ) was identified as moderately strong predictors of university

quality. These findings support hypotheses Ha, Hb, and Hc respectively. Conversely, Teaching Learning Activities ( $\beta = 0.089$ ,  $t = 0.723$ ,  $p > 0.05$ ) exhibited non-significant causal relationship with university quality, thus, not supporting hypothesis Hd. Here, Figure 3 (a and b) presents the Path coefficients histogram charts of the model.

On the other hand, R2 values vary from 0 to 1, with higher values suggesting stronger explanatory power. Here, the R2 values for UQ is 0.478, indicating model’s satisfactory explanatory power.

**Table 12.** Path coefficients

	O	M	STDEV	T Sta.	P Value
Assessment Practice -> University Quality	0.244	0.244	0.108	2.262	0.024*
Curriculum Practice-> University Quality	0.186	0.190	0.123	1.514	0.012*
Teaching Learning Activities -> University Quality	0.089	0.092	0.123	0.723	0.470
Technology Adaptation -> University Quality	0.207	0.200	0.102	2.022	0.043*
	<b>R-Square</b>			<b>R-Square Adjusted</b>	
	0.478			0.473	



**Figure 3 (a).** Path coefficients histogram charts

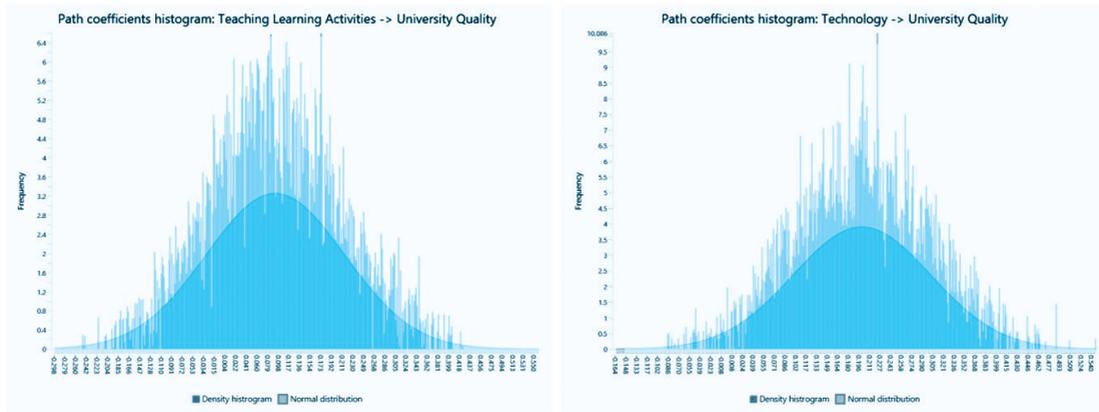


Figure 3 (b). Path coefficients histogram charts

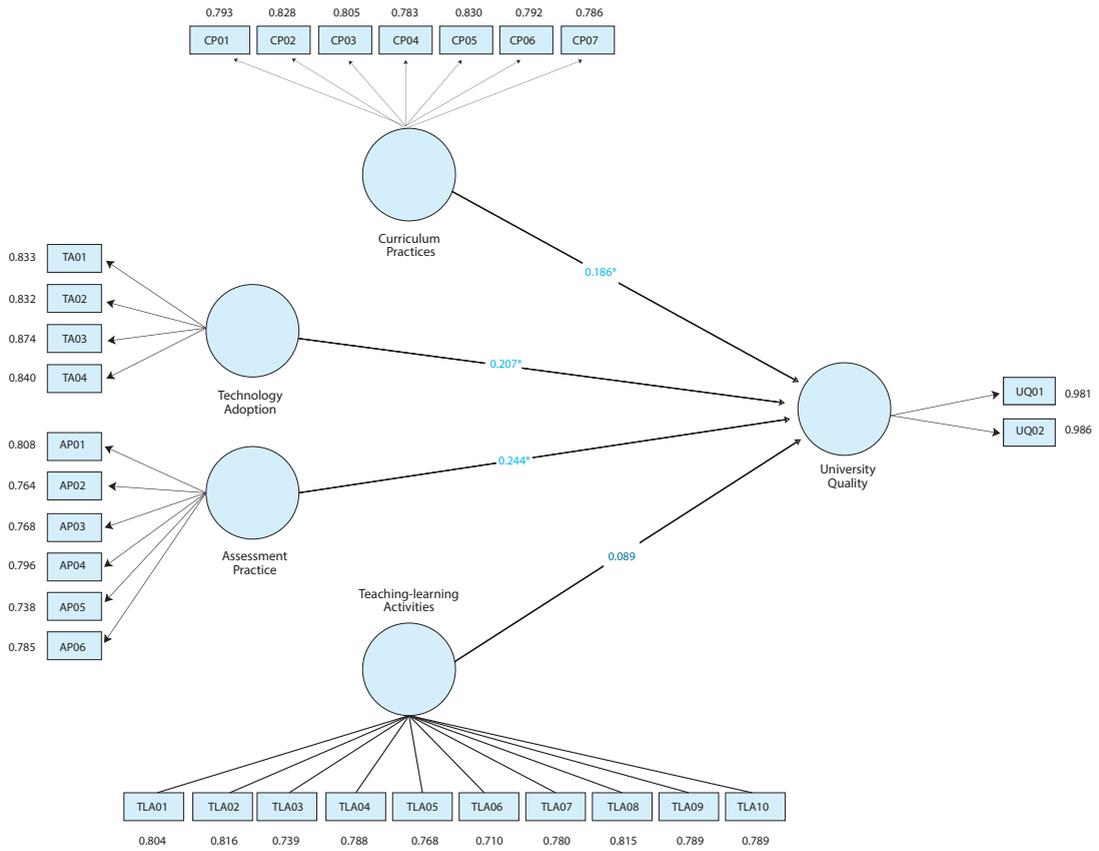


Figure 4 Final Model

## 6. Discussion

This study investigated the best practices employed by private universities in Bangladesh to achieve accreditation standards and their impact on university ranking and reputation. The findings reveal valuable insights into the current state of academic practices and the factors influencing university quality. The study found that private universities generally adhere to curriculum practices aligned with the Bangladesh Accreditation Council's (BAC) standards. This is encouraging as it signifies a focus on outcome-based education, ensuring students acquire the necessary knowledge and skills. The findings indicate that teaching-learning activities in most private universities are above average. However, similar to the curriculum, universities with higher rankings exhibit a significant edge in fostering effective teaching methods that promote student engagement and achievement of learning outcomes. The same trend holds true for technology adoption in teaching and learning. Universities with better rankings demonstrate a more comprehensive integration of technology, potentially creating a more dynamic and interactive learning environment for students. The study observed that assessment practices in private universities generally align with BAC guidelines, emphasizing practical application of knowledge and critical thinking skills. This is a positive step towards ensuring a well-rounded learning experience for students. However, faculty interviews revealed several challenges faced by universities in meeting accreditation demands. These challenges include a lack of sufficiently trained staff, limited facilities, and teacher burnout. These factors create a domino effect, hindering universities' ability to achieve optimal accreditation standards. The research identified a significant causal relationship between three key factors and university quality:

**OBE-based Assessment Practices:** Universities that implemented assessment practices aligned with OBE principles displayed a stronger association with higher university quality. This suggests that a focus on evaluating student learning outcomes through practical assessments is crucial for achieving educational excellence.

**Technology Adaptation:** Universities that effectively integrated technology into their teaching and learning activities demonstrated a positive impact on university quality. This signifies the potential of technology to enhance student engagement, access to information, and the overall learning experience.

**OBE-based Curriculum Practices:** While the study found a positive correlation between curriculum practices and university ranking, the impact on overall university quality was moderately strong compared to OBE assessment and technology adaptation. This suggests that curriculum alignment with accreditation standards is a necessary but not the sole factor influencing university quality.

**Teaching-Learning Activities:** Interestingly, the study did not find a statistically significant relationship between teaching-learning activities and university quality. This could be due to the subjective nature of student perceptions on teaching methods. Further research employing a combination of student surveys, faculty interviews, and classroom observation might provide a more nuanced understanding of how teaching styles influence university quality.

## 7. Policy and Implications

### A. Policy Implications:

- **Strengthen Accreditation Standards:** The study highlights a positive correlation between university ranking and adherence to accreditation standards. Policymakers can use these findings to strengthen accreditation standards, ensuring a minimum level of quality across all private universities. This could involve incorporating aspects like faculty training and resource allocation into accreditation criteria.
- **Focus on Faculty Training:** The study identifies a lack of sufficiently trained staff as a key challenge. Policymakers can introduce initiatives to support faculty development programs, particularly in areas like curriculum design, technology integration, and innovative teaching methods aligned with accreditation standards.
- **Resource Allocation and Infrastructure Support:** The research suggests a connection between limited facilities and achieving accreditation goals. Policies could focus on improved resource allocation for private universities, particularly those struggling to meet accreditation requirements.

### B. Pedagogical Implications:

- **Outcome-Based Curriculum Design:** The study emphasizes the importance of outcome-based curriculum design (OBE) for effective learning. Universities can encourage faculty to develop curricula with clear learning outcomes aligned with accreditation standards and industry needs.
- **Technology Integration in Teaching and Learning:** The findings highlight a positive impact of technology use on university ranking. Pedagogical approaches should encourage faculty to integrate technology effectively into their teaching practices to enhance student learning experiences.
- **Assessment Practices for Real-World Application:** The study emphasizes the need for assessments that encourage critical thinking and application of knowledge. Universities can promote the use of diverse assessment methods beyond traditional exams, such as projects, presentations, and portfolios that demonstrate students' ability to apply their learning in real-world scenarios.
- **Focus on Student Engagement and Active Learning:** While the study doesn't directly address teaching methods, the positive correlation between high ranking and teaching-learning activities suggests a potential link to student engagement. Pedagogical practices should promote active learning strategies that go beyond passive lectures, encouraging student participation and critical thinking.

Overall, the study suggests that a multi-pronged approach involving policy changes, faculty development, and improved pedagogical practices is necessary to ensure private universities in Bangladesh meet accreditation standards and deliver high-quality education.

## 8. Conclusion

This study sheds light on the efforts of private universities in Bangladesh to comply with accreditation standards and the factors influencing university quality. The findings highlight the importance of OBE assessment practices, technology integration, and a well-designed curriculum for achieving educational excellence. Addressing the challenges faced by universities in meeting accreditation demands is crucial for continued improvement. Future research directions were also identified to further explore the complexities of university quality and its influencing factors.

## 9. Acknowledgement

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