Outcome Based Education (OBE): An empirical analysis of the challenges in Implementing OBE to Improve Quality Education

ABSTRACT

Aims: The overall contribution of this paper is to provide adequate support to all the academic stakeholders involved by offering a comprehensive understanding of the Outcome Based Education (OBE) process and practices for accreditation strategy to ensure continuous quality improvement (CQI). Additionally, this study aims to offer some recommendations for overcoming obstacles and enhancing the quality of education.

Study design: The populations for this research are the faculty members of different universities, 64 questionnaires were distributed through surveys and 49 faculty members were considered.

Place and Duration of Study: The research utilizes a data collection method that combines both online and offline surveys between December 2023 and March 2024.

Methodology: The statistical analysis refers to the outcome of the quantitative data. This study focused on demographic data such as gender, academic profession, and prior experience taking OBE classes. All respondents were faculty members. 91.8% had experience in OBE classes, while the remaining 8.2% did not. A structured questionnaire consisting of a five-point Likert scale is employed. Multiple regression analysis is the study methodology used. Cronbach's alpha is used to gauge internal consistency prior to performing the regression. Here, equations and associated tests are performed using IBM SPSS Statistics 26. Every hypothesis has been examined at the 0.05 significance level.

Results: Out of a total of 49 samples, it consists of 57.1% men and 42.9% women. 91.8% had experience in OBE classes. With a value of 0.908 for Cronbach's alpha, the reliability is accepted to be high. With an R-squared of.606, the model's explanatory variables account for 60.6% of the variance in the adoption of an OBE curriculum. The findings of this study show that Switching to OBE has a statistically significant positive impact on the quality of

education.

Conclusion: The challenges in the implementation of the OBE curriculum and possible recommendations in Bangladesh have been described in this paper.

Keywords: Outcome-Based Education (OBE), Higher Education Institution (HEI), Institutional Quality Assurance Cell (IQAC), Students Empowerment, Quality Education

1. INTRODUCTION

A performance-oriented approach to creating innovative higher-level curricula, referred to as outcome-based education or OBE, has rapidly become a de facto norm in numerous existing and developing educational systems, including those in Europe, the United States, Australia, Malaysia, India, Pakistan, Indonesia, and Bangladesh. An outcome is the final presentation of knowledge that students should be able to perform at the conclusion of the class and during their studies for their degree (Syeed, 2022). Many universities and colleges now prioritize learning outcomes and continuous enhancement in quality improvement (Saha, 2023). The OBE (Outcome-Based Education) is a highly effective pedagogical framework. Within the framework of Outcome-Based Education (OBE), students employ their cognitive abilities to acquire and excel in skills that facilitate their adjustment to various aspects of life (Ping, 2020). There are issues concerning the implementation of OBE methods despite their design to increase student learning. Traditional curricula and delivery techniques, with their time-defined structures, may also make it difficult to effectively apply OBE methodologies (Spady, 1994). This study aims to explore the essence of outcome-based education (OBE) in Bangladesh and elucidate how the integration of theory and practice can foster a higher education system that is both flexible and innovative. There is no one single model to describe OBE (Kaliannan, 2012).
Most of the OBE curriculum's implementation attempts are failing because there is a deficiency of relevant documentation, a comprehensive grasp of the OBE method and practices, and a comprehensive OBE framework that explicitly describes the principles of the OBE mandate. Therefore, this paper's objective is to narrow this gap by empirical research. The purpose of this study was to provide models that have a significant impact on the implementation of outcome-based education (OBE) at the higher education level for all educational stakeholders. As a result, students may have an enhanced educational experience.

This article addresses the problems and challenges faced during the implementation of Outcome-Based Education (OBE) to enhance the quality of education at higher-level institutions. The research has collected information from reputable online scholarly sources, which shows that during the implementation of the OBE system, most tertiary-level educational institutions faced issues such as inadequate curriculum delivery, inconsistent implementation of the system, excessive workload for teachers, lack of administrative support, structuring outcomes curriculum and assessment methods, reinventing the role of educational professionals, acceptance issues, inadequate documentation and inadequate practicum evaluation on students and their learning outcomes after completion of learning (Akhmadeeva L. H., 2013), (Damit, 2021), (Reich A. Z., 2019), (Shaheen, 2019), (Shaheen, 2019), (Sun, 2020), (Syeed, 2022).

The study provides valuable insights into the crucial factors that will contribute to the effective implementation of Outcome-Based Education (OBE).

To continuously develop the curriculum at higher education institutions, it is crucial to establish a systematic method that objectively and effectively measures students' performance, considering the significance of quality assurance and curriculum enhancement. This study broadly intended to identify and address the concerns and challenges encountered during implementing outcome-based education (OBE) and provide possible solutions**.**

Tyler first proposed the idea of highlighting educational goals in 1949 (Morcke, 2013). Wilson (1994: pp.1-2) equated outcome-based education with performance-based education. In the 1970s, OBE was endorsed and promoted using Mager's learning objectives (Mager 1997), Bloom's mastery of learning (Bloom B. S., 1956), (Bloom B. S., 1968), and Gagne's instructional design.

Outcome-based education (OBE) has been implemented by numerous countries to update their educational systems, including the United States of America, New Zealand, the Philippines, South Africa, Canada, and many more (Malan 2000; p. 22). As part of its strategic aim to raise quality assurance in Higher Education Institutions (HEIs) in Bangladesh, The University Grants Commission (UGC) has been launching the Higher Education Enhancement Project (HEQEP) in partnership with the World Bank since 2009. The 2010 National Education Policy, which placed a strong emphasis on producing graduates who could compete in a changing job market and develop the country, is what led to its adoption into Bangladesh's higher education system (Ministry of Education, 2010). To help universities set up Internal Quality Assurance Cells (IQAC) at all universities, the UGC formed the Quality Assurance Unit (QAU) as a subsidiary of the UGC. The HEQEP first put policies into place to improve university quality assurance. The Institutional Quality Assurance Cell (IQAC) was established by the majority of universities with three years of World Bank assistance. Each university has set up an Internal Quality Assurance Cell (IQAC) to provide a system for evaluating institutional operations and study programs following the conclusion of a three-year project (Hossain, 2023).

This history explains the OBE curriculum as a mandatory sustainable education system to cope with the developed country. To this purpose, the UGC (University Grant Commission) in Bangladesh has strongly recommended that the majority of tertiary institutions, realizing the advantages of OBE, make changes to their program curriculum in support of the OBE approach and allocate resources to facilitate this transition. Most universities have made similar attempts, but their endeavors are proving unsuccessful due to insufficient documentation, a lack of a thorough understanding of the OBE method and procedures, and other problems faced by faculties. However, this research aims to address this gap by conducting an analysis and proposing recommendations.

When a student leaves their educational institution, outcome-based systems consider how much they have learned and how well they will eventually do. In OBE, an instructor's job is not to solve issues for the children; rather, they should assist these individuals in finding the answers on their own. It is not an instructor's job to give the students fish; rather, it is their duty to show them how to fish (Spady, 1994).

The purpose of this research is to provide a road map for developing an outcome-based setting that can increase faculty participation in curriculum development and the application of outcome-based education (OBE). This could, therefore, expand the institution's capacity to satisfy the requirements of accreditation organizations for transparency, create avenues for productive peer conversations, and enhance the caliber of education and student results. This study focused on specific recommendations for putting the Outcome-Based Education (OBE) system into practice for various stakeholders, such as faculty, accreditation organizations, policymakers, and higher education institutions. The credibility of educational institutions, which ensures high-quality instruction, may be improved with the successful application of the OBE approach.

There are 53 public universities, 107 private institutions, and three foreign universities in Bangladesh (UGC, 2022). A huge number of participants using a range of research tools from various contexts

may be a part of the future study. The research study focuses on the perspectives of educators and administrative personnel from universities and colleges about what they already know about the Outcome-Based Education approach and how their current pedagogical practices are affecting their students' learning.

A survey of a limited number of academic participants was conducted in this study. It was challenging to find experienced academicians in this field. Most faculty members at the tertiary level were inexperienced or newly introduced to the OBE system. Some faculties were also reluctant to provide information due to their insufficient knowledge & expertise on OBE. The scope of this study only included the attitudes of faculties on the implementation of OBE**.** Further research should focus on the attitudes or opinions of the students on the implementation of OBE.

3. REVIEW OF THE RELATED LITERATURE

The ability of students to meet course learning objectives at the conclusion of each course and learning session is the main focus of the modern educational system known as OBE (Outcome Based Education) (Spady, 1994). In order to ensure that the desired outcomes are achieved, OBE is a curriculum-focused, student-centered approach that combines curriculum design, instruction, and evaluation (Ortega, 2016). The OBE approach helps students develop their knowledge and skills by using student-centered learning, competitive evaluation, and instructor facilitation (Damit, 2021). An educational strategy known as "Outcome-Based Education" (OBE) centers on the traits or results that students would experience upon finishing a course of study (Barr, 2006, October) (Mansor, 2008, October). In order to prepare graduates for the challenges of the fourth industrial revolution, they must possess the knowledge, creativity, high degree of competence, adaptability, innovation, critical thinking, problem-solving skills, and entrepreneurial spirit. This can only be achieved through the implementation of the OBE mechanism. In an atmosphere that is supported by OBE, students are driven by what they can learn and use to address problems in real life (Ben-David, 1999). OBE is a combination of three distinct competency kinds: Practicality is the ability to perform activities and make decisions; fundamentality is the understanding of the reasons behind actions; and reflection is the use of information in a sensible and appropriate manner, learning and growing via self-reflection. Pupils take responsibility for their own education and are motivated by affirmation of their worth and admiration (Syeed, 2022).

An outcomes-based approach prioritizes acquiring knowledge, achievements, aims, motives, and outputs. Every outcome of learning outlines the performance standards that students must meet to be certified at the conclusion of the instructional procedure (Spady, 1994). The implementation procedure is a collaborative endeavor (Hill, 2018). Transitions in the educational system from traditional ways to new OBE-based approaches all stakeholders, administrators, instructors, and students (Fullan, 2007) necessitate adjustment through a unique strategy and have an impact on how it is implemented (Mangali, 2019). Without an appropriate OBE implementation strategy, establishing an OBE system can be difficult ((Gunarathne, 2019), (Reich A. Z., 2019), (Spady, 1994).

Damit et al. (2021) discovered that the primary barriers to implementing the OBE-based teaching and learning process are the workload of instructors, poor curriculum delivery, inconsistent system implementation, and a lack of administrator support. The attempt is failing due to a lack of proper documentation, a poor understanding of the OBE process and processes, and a poorly defined OBE framework that fails to clearly identify the core elements of the OBE mission. The study's findings also showed that the adoption of OBE is hampered by certain teachers' resistance to implementing changes in the classroom (Damit, 2021). They said good lecturers can change an organization's reputation. To motivate and support instructors in teaching better, teaching supplies must be changed immediately. Administrators must regularly monitor OBE implementation in institutions to obtain data and take action if the organization has faults. Administrators organize organizational

needs and support instructors to meet learning objectives (Damit, 2021). Progressive reorientation between the organization and the staff concerning OBE execution should be restored (Mangali, 2019).

Concerns remain about stakeholder knowledge of outcome-based education, the progressive deployment of OBE methodologies up to the base level, or a top-down strategy from the base level to post-secondary and tertiary levels. Training gaps exist between curriculum and outcomes, teaching methods, results evaluation, and acceptance concerns. They concluded that acceptance challenges, paradigm shifts, assuring educational quality, organizing outcomes and evaluation techniques, rethinking educational professionals' roles, teacher and student attitudes, etc. make curriculum-wide outcome-based education difficult (Shaheen, 2019).
Reich et al. (2019) stated that since many academics resist change and don't share excellent practices, this problem is common. Thus, academics should receive extensive training and customized supervision to ensure they grasp the OBE process and can alter their courses. We need an incentive program and training that actively involves scholars in administrative chores and excellent communication channels to promote clear and transparent information flow between academics and stakeholders (Reich A. Z., 2019), (Sun, 2020).
A study highlighted the considerable costs and exertions required to acquire accreditation or execute the OBE procedure. When an institution is looking to get accredited or use the OBE process for quality control, it's smart for upper management to set aside enough resources and support to make sure everything runs smoothly (Roller, 2003), (Djoundourian, 2017).
Akhmadeeva et al. (2013) found that issues like dealing with large (and growing) student populations, the current students' resistance to change, and lack of willingness to think creatively required the desired qualities, the teacher's acknowledged motivation, etc. They also advised dividing crowded learning environments into manageable chunks, using a variety of simple and "student-centered" teaching strategies, and motivating and involving students so they feel like they can speak, act as practitioners, and be specialists in the learning environment (Akhmadeeva L. H., 2013).

The OBE paradigm also necessitates program validation, verification, and accreditation from appropriate bodies, such as the UGC (Syeed, 2022). An assessment was carried out by (Kim, 2016), (Reich A. Z., 2019) to verify the effectiveness of the rubrics in serving as a grading guide in schools and mitigating prejudice. In addition, implementing a standardized set of rubrics and clearly defining learning goals creates a greater understanding of the expectations for student performance and program effectiveness. This will result in students being more motivated to take responsibility for their studies (Gunarathne, 2019), (Matthews, 2018), (Reich A. Z., 2019).

To successfully implement outcome-based education, educational institutions need to confirm that the intended objectives have been precisely identified and aligned with the subject matter of the curriculum (Gurukkal, 2020). It is necessary to consistently enhance the quality of courses and programs in order to achieve sustainable results (Sun, 2020). Nakkeeran et al. talk about how Outcome Based Education (OBE) can improve the level of education and make it easier for people to move around the world (Nakkeeran, 2018).

4. CONCEPTUAL ISSUES AND VARIABLES SELECTION

Several studies have been conducted about OBE implementation and identifying challenges to overcome them. This study has been conducted to recommend ways to overcome challenges of the implementation of the OBE curriculum to improve quality education. Overcoming challenges of the OBE curriculum implementation is influenced by several factors such as reasons for switching to OBE curriculum (Roy Killen, 2013), improvement of quality education- (SDG-4) (Syeed, Outcome based education (OBE): Defining the process and practice for engineering education., 2022), solution to recommendation intentions, etc. These factors are further influenced by multiple factors like international accreditation (Spady, 1994), OBE’s power principles (Clarity of focus, Expanded

opportunity, High Expectation, and Design Down) (Spady, 1994), student-centered than teacher centered (Roy Killen, 2013), performance standard of OBE (Akhmadeeva L. H., 2013), Student career support (Spady, 1994) teacher development training and improvement plan (Syeed, Outcome based education (OBE): Defining the process and practice for engineering education., 2022) about OBE, teacher job satisfaction (Syeed, Outcome based education (OBE): Defining the process and practice for engineering education., 2022) in relation to experience, continuous quality improvement (Syeed, Outcome based education (OBE): Defining the process and practice for engineering education., 2022), proper documentation (Syeed, Outcome based education (OBE): Defining the process and practice for engineering education., 2022) of OBE file, keeping sustainable momentum of OBE implementation (Shaheen, 2019), OBE rubrics (Damit, 2021), teaching equipment (Damit, 2021), practical learning (Damit, 2021), Positive teaching attitude (Roy Killen, 2013), visualization of OBE implementation (Mansor, 2008, October) etc.

The literature review suggests how the variables are related. After reviewing the literature, the below model for switching to OBE, Quality education, and recommended intention of OBE curriculum are developed focusing on 15 independent variables.

4.1 Switching to the OBE Curriculum

Teachers must employ a range of direct and "student-centered" teaching strategies; provide opportunities for students to practice newly acquired knowledge; and assist students in bringing each learning episode to a personal conclusion in order to demonstrate to them where this new knowledge will lead (Roy Killen, 2013). Several studies have shown that switching from a traditional teaching-learning approach to OBE is dependent on International accreditation, OBE's power principles, student-centered than teacher-centered, performance standard of OBE, Student career support (Spady, 1994), (Roy Killen, 2013), & (Akhmadeeva L. H., 2013). The hypothesis relation among them is shown in Figure 1:

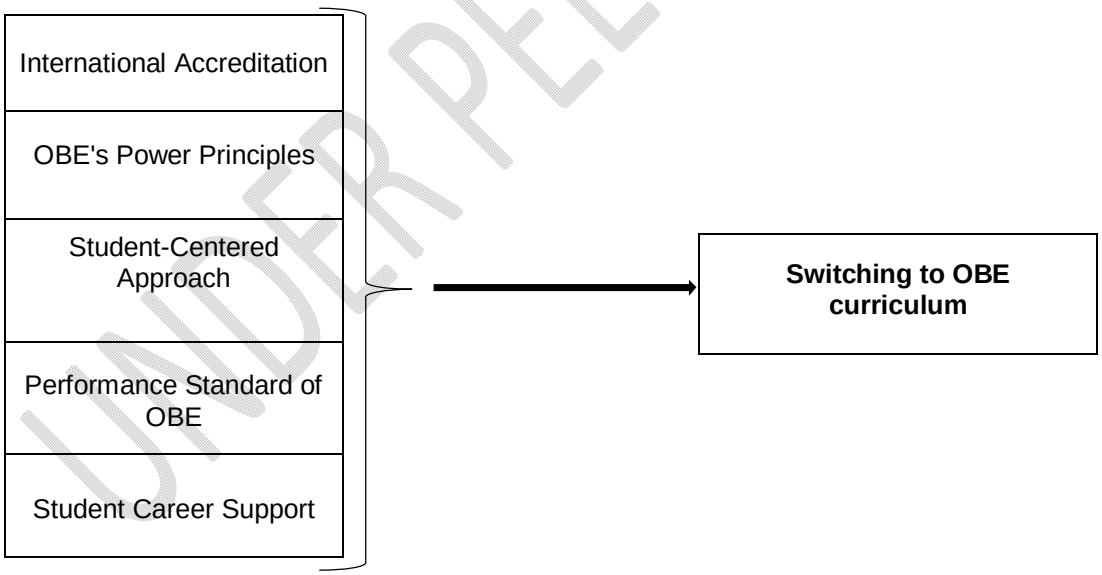

Figure 1. Proposed Model for Explaining Cause Factors for Switching to OBE Curriculum

H1: (a) International accreditation, (b) OBE's power principles, (c) student-centered approach, (d) performance standard of OBE, and (e) student career support has positive influence on switching to OBE curriculum.

4.2 Quality Education- (SDG-4)

Adopting the OBE framework results in the creation of a feedback mechanism and high-quality education that is equal and inclusive. As a result, the graduates will be guaranteed lifetime learning opportunities where they may put their newly acquired knowledge to good use. Several studies have shown that quality education dependent on teacher development training and improvement plans about OBE, teacher job satisfaction in relation to experience, continuous quality improvement, proper documentation of OBE file, keeping sustainable momentum of OBE implementation (Syeed, Outcome based education (OBE): Defining the process and practice for engineering education., 2022), (Shaheen, 2019). The hypothesis relation among them is shown in Figure 2:

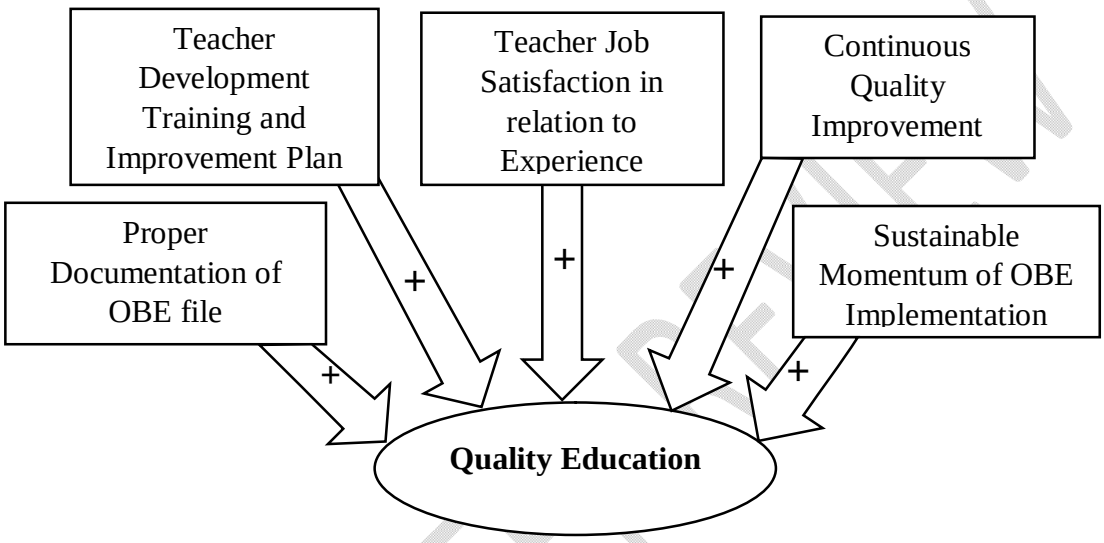

Figure 2. Proposed Model for Explaining Factors of Quality Education

H2: (a) Teacher development training and improvement plan, (b) teacher job satisfaction in relation to experience, (c) continuous quality improvement, (d) proper documentation of OBE file, (e) sustainable momentum of OBE implementation plays significant impact on quality education.

4.3 Recommended Intentions

OBE rubrics, teaching equipment, practical learning, positive teaching attitude, and visualization of OBE implementation help overcome the challenges of OBE implementation and improve quality education. The hypothesis relation among them is shown in Figure 3:

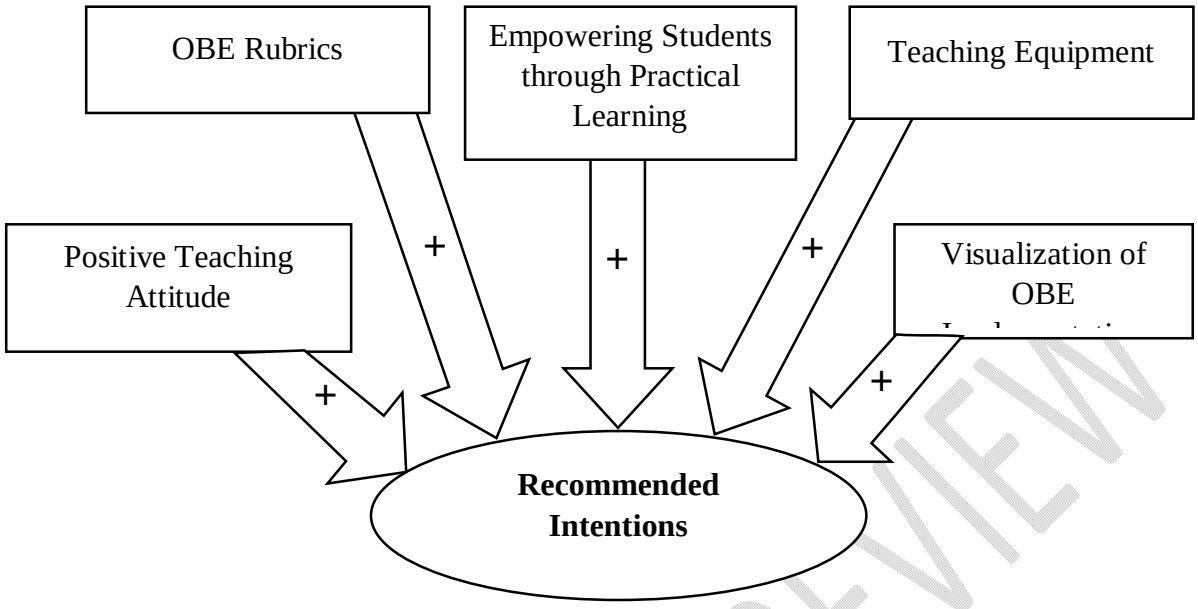

Figure 3. Proposed Model for Explaining Recommended Intention

H3: (a) OBE rubrics, (b) teaching equipment, (c) empowering students through practical learning, (d) positive teaching attitude, and (e) visualization of OBE implementation have positive impacts on recommended intention to OBE implementation.

4.4 Methodology

Research methodology is sometimes seen as the problem-solving application of the scientific method (Pandey, 2021). After carefully analyzing the literature, the researcher should explicitly identify the working hypothesis or hypotheses. A working hypothesis is a tentative assertion that is produced to uncover and evaluate its empirical or logical outcomes (Pandey, 2021). It serves as the investigation's main focus.

The researchers only included data in this study design that would support the study's goals and be consistent with their findings. According to the research objectives, the population for this research is the forty-five faculty members of different universities, who have experience taking classes with OBE batches. Sixty-four questionnaires were distributed both through online and offline surveys among faculty members of different public and private universities in Bangladesh. Among them, five questionnaires were lost, six faculty members have no experience in taking classes at OBE, eight faculty members answered that they just started class at OBE, so they don't have much more knowledge about it, and 45 faculty members have at least 2 years of teaching experience about taking courses at OBE system and able to answer all the questions of the questionnaire. The opinions of these 45 faculty members were considered for this research. The statistical analysis of these quantitative data provided a positive research outcome.

The research utilizes a structured questionnaire consisting of a five-point Likert scale. This scale allows participants to indicate their level of agreement with statements related to their experience with the OBE system to identify whether they (1) Strongly Agree, (2) Agree, (3) Neutral, (4) Disagree, and (5) Strongly Disagree. For statistical analysis, the quantitative questionnaires were gathered, and statistical software SPSS version 26 was used for frequency distribution to examine the demographic characteristics of the participants and regression analysis to investigate the association between certain factors. Multiple regression analysis is the study methodology used. Cronbach's alpha is used

to gauge internal consistency before performing the regression. Every hypothesis has been examined at the 0.05 significance level.

The table presents descriptive statistics on the demographic characteristics of the individuals who participated in the study. The sample consists of 57.1% men and 42.9% women. All respondents were faculty members. 91.8% had experience in OBE classes, while the remaining 8.2% did not.

Table 1. Demographic Information of Respondents

Measure	Item	Number	Percentage (%)
Gender	Male	28	57.1
	Female	21	42.9
Faculty Member	Yes	49	100
	No	0	0
Taken OBE Classes	Yes	45	91.8
	No	6	8.2

**Source: constructed from primary data using Microsoft Excel*

5. Results

Table 2. List Of Dependent and Independent Variables with Acronym

Sl.	Variable name		Acronym
	Dependent Variable	Independent Variables	
1.	Switching to OBE Curriculum (SOC)	International Accreditation	IA
		OBE's Power Principles	OPP
		Student-Centered Approach	SCA
		Performance Standard of OBE	PSO
		Student Career Support	SCS
2.	Quality Education (QE)	Teacher Development Training and Improvement Plan	TDTIP
		Teacher Job Satisfaction in Relation to Experience	TJSE
		Continuous Quality Improvement	CQI
		Proper Documentation of OBE File	PDO
		Sustainable Momentum of OBE Implementation	SMOI
3.	Recommended	OBE Rubrics	OR

	Intentions (RI)	Teaching Equipment	TE
		Empowering Students through Practical Learning	ESPL
		Positive Teaching Attitude	PTA
		Visualization of OBE Implementation	VOI

**Source: constructed from primary data using Microsoft Word*

5.1 Hypothesis Testing

Table 3. Reliability Statistics

Cronbach's Alpha	Number of Items
.908	18

**Source: constructed from primary data using Microsoft Word*

With a value of 0.908 for Cronbach's alpha, the reliability is accepted to be high (See Table 3). Stated differently, this value indicates that each participant's response values are consistent throughout the set of questions.

Proposed model for Switching to OBE

$$SOC = \beta_0 + \beta_1^* IA + \beta_2^* OPP + \beta_3^* SCA + \beta_4^* PSO + \beta_5^* SCS \quad (1)$$

$H1: \beta_i > 0$, for $i=1, 2,3,4,5$

Table 4. Model Summary of Proposed model for Switching to OBE

R	R Square	Adjusted R Square	Standard Error of the Estimate
.778	.606	.554	.55701

**Predictors: (Constant), IA, OPP, SCA, PSO, SCS*

Table 5. Anova test of Proposed model for Switching to OBE

Model	Sum of Squares	Degree of freedom	Mean Square	F statistic	Significance
Regression	18.119	5	3.624	11.680	.000
Residual	11.790	38	.310		
Total	29.909	43			

**Dependent Variable: SOC*

**Predictors: (Constant), IA, OPP, SCA, PSO, SCS*

Table 6. Coefficients of Proposed model for Switching to OBE

Hypothesis	Model	Unstandardized Coefficients		Standardized Coefficients	t statistic	Significance
		Beta	Standard Error	Beta		*P*>|t|
	(Constant)	.632	.513		1.231	.226
H_{1a}	IA	-.073	.167	-.070	-.440	.662
H_{1b}	OPP	.018	.131	.020	.140	.889
H_{1c}	SCA	.060	.100	.070	.599	.553
H_{1d}	PSO	.371	.149	.366	2.485	.017
H_{1e}	SCS	.449	.116	.499	3.862	.000

**Dependent Variable: SOC*

$$SOC = .632 - .073^{*} IA + .018^{*} OPP + .0960^{*} SCA + .371^{*} PSO + .449^{*} SCS$$

Table 6 shows that OBE's power principles, student-centered approach, performance standard of OBE, and student career support have statistically significant positive effects on switching to OBE, supporting hypotheses H_{1b}, H_{1c}, H_{1d}, and H_{1e}. Student career support (*β=.449)* has the greatest influence on switching to OBE, followed by the performance standard of OBE (*β=.371)*, student-centered approach (*β=.060)*, and OBE's power principles (*β=.018)*. However, International accreditation (*β=-.073)* has a statistically negative effect on switching to OBE, rejecting H_{1a}. With a statistically significant value of.632, the Intercept (β0) is likewise highly significant. With an R-squared of.606, the model's explanatory variables account for 60.6% of the variance in adopting an OBE curriculum. Furthermore, as demonstrated by the F-ratio in ANOVA (See Table 5), which explains the regression model's good fit to the data, the independent variables statistically significantly predict the dependent variable, F(5, 38) = 11.680, p <.0005.

Proposed Model for Quality Education:

$$QE = \beta_0 + \beta_1^{*} TDTIP + \beta_2^{*} TJSE + \beta_3^{*} CQI + \beta_4^{*} PDO + \beta_5^{*} SMOI \quad (2)$$

H2: β_i>0, for i=1, 2,3,4,5

Table 7. Model Summary of Proposed Model for Quality Education

R	R Square	Adjusted R Square	Standard Error of the Estimate
.980	.961	.956	.20816

**Predictors: (Constant), TDTIP, TJSE, CQI, PDO, SMOI*

Table 8. Anova test of Proposed Model for Quality Education

Model	Sum of Squares	Degree of freedom	Mean Square	F statistic	Significance
Regression	40.899	5	8.180	188.776	.000

Residual	1.647	38	.043		
Total	42.545	43			

**Dependent Variable: QE*
**Predictors: (Constant), TDTIP, TJSE, CQI, PDO, SMOI*

Table 9. Coefficients of Proposed Model for Quality Education

Hypothesis	Model	Unstandardized Coefficients		Standardized Coefficients	t statistic	Significance *P*>|t|
		Beta	Standard Error	Beta		
	(Constant)	-.332	.215		-1.542	.131
H_{2a}	TDTIP	.923	.046	.901	19.965	.000
H_{2b}	TJSE	.047	.040	.047	1.181	.245
H_{2c}	CQI	.032	.050	.027	.644	.523
H_{2d}	PDO	-.061	.048	-.052	-1.270	.212
H_{2e}	SMOI	.137	.053	.108	2.576	.014

**Dependent Variable: QE*

$$QE = -.332 + .923^{*} TDTIP + .047^{*} TJSE + .032^{*} CQI - .061^{*} PDO + .137^{*} SMOI$$

Table 9 shows that teacher development training and improvement plans, teacher job satisfaction in relation to experience, continuous quality improvement, and sustainable momentum of OBE implementation have statistically highly significant positive effects on quality education, supporting hypotheses H_{2a}, H_{2b}, H_{2c}, and H_{2e}. Teacher development training and improvement plan (*β=.923)* have the strongest impact on quality education, followed by sustainable momentum of OBE implementation (*β=.137)*, teacher job satisfaction in relation to experience (*β=.047)*, and continuous quality improvement (*β=.032)*. However, Proper documentation of OBE files (*β=-.061)* has a statistically negative effect on switching to OBE, rejecting hypothesis H_{2d}. With a value of -.332, the Intercept (β0) is likewise statistically highly significant. With an R-squared value of.961, the model's explanatory variables account for 96.1 percent of the variance in high-quality education. Furthermore, as demonstrated by the F-ratio in ANOVA (See Table 8), which explains the regression model's good fit to the data, the independent variables statistically and significantly predict the dependent variable, F(5, 38) = 188.776, *P* <.0005.

Proposed Model for Recommended Intentions

$$RI = \beta_0 + \beta_1^{*} OR + \beta_2^{*} TE + \beta_3^{*} ESPL + \beta_4^{*} PTA + \beta_5^{*} VOI \quad (3)$$

H3: $\beta_i > 0$, *for i=1, 2,3,4,5*

Table 10. Model Summary of Proposed Model for Recommended Intentions

R	R Square	Adjusted R Square	Standard Error of the Estimate
.905	.819	.795	.30542

**Predictors: (Constant), OR, TE, ESPL, PTA, VOI*

Table 11. Anova test of Proposed Model for Recommended Intentions

Model	Sum of Squares	Degree of freedom	Mean Square	F statistics	Significance
Regression	16.001	5	3.200	34.305	.000
Residual	3.545	38	.093		
Total	19.545	43			

**a. Dependent Variable: RI*

**b. Predictors: (Constant), OR, TE, ESPL, PTA, VOI*

Table 12. Coefficients of Proposed Model for Recommended Intentions

Hypothesis	Model	Unstandardized Coefficients		Standardized Coefficients	t statistics	Significance *P*>|t|
		Beta	Standard Error	Beta		
	(Constant)	.433	.442		.978	.334
H_{3a}	OR	.642	.085	.635	7.528	.000
H_{3b}	TE	.495	.096	.519	5.142	.000
H_{3c}	ESPL	-.291	.091	-.317	-3.192	.003
H_{3d}	PTA	.017	.096	.017	.179	.859
H_{3e}	VOI	.035	.071	.040	.491	.626

**Dependent Variable: RI*

$$RI = .433 + .642^{*} OR + .495^{*} TE - .291^{*} ESPL + .017^{*} PTA + .035^{*} VOI$$

Table 12 shows that OBE rubrics, teaching equipment, positive teaching attitude, and visualization of OBE implementation have a statistically significant positive effect on recommended intention, supporting hypotheses H_{3a}, H_{3b}, H_{3d}, and H_{3e}. OBE rubrics (*β*=.642*)* have the strongest impact on recommended intention, followed by teaching equipment (*β*=.495*)*, visualization of OBE implementation (*β*=.035*)*, and positive teaching attitude (*β*=.017*)*. However, empowering students through practical learning (*β*=*-.291)* has a statistically negative effect on recommended intention, rejecting hypothesis H_{3c}. With a statistically significant value of.433, the Intercept (β0) demonstrates strong statistical significance. With an R-squared of.905, the model's explanatory variables account for 90.5% of the variance in recommended intention. Furthermore, the F-ratio in ANOVA (See Table 11) demonstrates that the independent variables statistically significantly predict the dependent variable, F(5, 38) = 34.305, *P* <.0005, which clarifies why the regression model provides a good fit for the data.

7. DISCUSSION

The widespread adoption of outcome-based education (OBE) by many countries, including ours, has resulted in the shift from traditional to modern educational systems (Malan, 2000). Similar to our study, previous researchers also found that the core principles of OBE create a structured approach to achieving measurable outcomes, the shift to student-centered learning fosters a more interactive and personalized educational environment, OBE's emphasis on performance standards ensures that assessments are rigorously aligned with predefined outcomes, and integrating career guidance within OBE curricula aligns educational outcomes with labor market needs (Macayan, 2017; Junaid Qadir, 2020; Naniek Utami Handayani, 2021). Furthermore, the study outcome backed by past studies, indicates that professional development equips teachers with advanced pedagogical skills, job satisfaction among experienced teachers improves retention and teaching quality when aligned with institutional support, CQI promotes adaptability and sustained excellence in teaching through feedback and iterative evaluations (Deming, 1986), and sustained OBE implementation builds institutional effectiveness and prepares students for professional demands (Darling-Hammond, 2017; Deming, 1986; Biggs, 2011; Harden, 2007). Finally, past studies have also supported our findings by highlighting that clearly defined OBE rubrics, availability and effective use of teaching equipment supporting diverse learning styles, a positive teaching attitude characterized by enthusiasm and support, and visualizing the OBE process contribute to a positive intention and effective OBE implementation (Anderson, 2017; Dahl, 2019; Collins, 2018; Clark, 2017).

This study aimed to examine the barriers experienced throughout the OBE system's implementation and determine approaches to overturning those barriers. In the process, this study has identified the key reasons for switching to the OBE system as well as avenues for raising educational standards. It also highlighted the intentions suggested to facilitate the implementation of OBE. The findings of this research will encourage more colleges and universities to switch to the OBE system to improve the quality of education. Also, by considering the recommended intention, existing institutions with the OBE system can give their students a better educational experience.

Despite the obvious initiative to transition to the OBE system, many institutions have fallen behind due to the lack of resources. As a result, there remains a significant research gap in this field. Although there are only a few studies in this area, the majority of them are conceptual and qualitative. Our research took a quantitative approach to investigate OBE implementation issues, challenges encountered during the implementation process, and proposed solutions. This study is expected to encourage other researchers to devote more resources to the OBE system, thereby enhancing the overall process.

8. CONCLUSION

In the 4th industrial revolution, outcome-based education (OBE) is necessary to strengthen, advance, and sustain the tertiary education system to achieve sustainable development goals, particularly SDG 4. The University Grants Commission is developing, delivering, and assessing learning outcomes-based curriculum for SDG-4. Outcome-based learning can alter student learning by giving them more marketable skills and knowledge. Instead of grade improvement, it emphasizes lifelong learning skills. This study investigated the issues faced by the faculties during the implementation of OBE and highlighted possible solutions to improve the current situation to ensure better quality education. This research focuses on some proposed models to examine that how OBE implementation and quality education are interrelated.

In order to implement outcome-based education, it is crucial to enhance awareness, provide training to all relevant parties, ensure that curricula are in line with the desired goals, employ suitable instructional techniques and resources, evaluate the achieved outcomes, and address any problems related to acceptance. This study also allows these parties to be informed about OBE. It noted and

spoke about the challenges when the OBE process was put into action. Furthermore, this study provided recommendations to improve the execution of the OBE process. The application of the OBE method at a business school in a private or public educational institution in Bangladesh may be the subject of future research.

To effectively implement OBE, the Outcome-Based Education (OBE) system mandates that all tertiary-level educational institutions in the nation follow a uniform strategy for graduate preparation. This assessment will establish the structure for aiding faculty in achieving a successful and streamlined shift to the OBE paradigm (Akhmadeeva L. H., 2013). In addition, a thorough understanding of the OBE system is required. Colleges and universities need to include the OBE system in their course syllabi, evaluation procedures, and pedagogical practices so that students can grasp its relevance in quality education. This study is expected to encourage different institution to provide enough resources and training to implement OBE system.

TERM DESCRIPTION

OBE: Curriculum design, instruction, and evaluation are all part of OBE, a curriculum-centered and student-centered approach that ensures the desired outcomes are achieved (Damit, 2021).

HEI: Higher education institutions, or HEIs, comprise colleges, universities, and professional schools that offer courses in subjects like business, law, medicine, music, and the arts (Hosen, 2023).

BNQF: The Bangladesh National Qualifications Framework (BNQF) for Higher Education is an internationally recognized instrument for the advancement, classification, and recognition of abilities, knowledge, and competencies across a range of preset levels (Education, 2021).

CQI: Continuous Quality Improvement (CQI) The methodical is the process of auditing and enhancing the quality of education that has been started and is managed by a department, program, or school (Syeed, 2022).

IQAC: Establishing, creating, and managing a long-term quality assurance system using a framework to protect quality against predetermined benchmarks is the main duty of the Institutional Quality Assurance Cell (IQAC) (Syeed, 2022).

PEO: The broad declarations known as Program Educational Objectives (PEOs) spell out the professional and career results that program graduates should attain after working for three to five years afterward (Syeed, 2022).

PLO: Program Learning Outcomes (PLOs) are more focused statements related to the knowledge, skills, and attitudes that the students should possess by the time of graduation (Syeed, 2022).

CLO: A Course Learning Outcome (CLO) should specify the knowledge and skills that students acquire upon completion of the course, taking into account the course's level and place in the curriculum as well as the major's graduation requirements (Syeed, 2022).

Graduate Attributes: The knowledge, abilities, attitudes, and values that a graduate is expected to have acquired through studies at a higher education institution (HEI), such as a college or university, are reflected in the graduate attributes, which are specific qualities and features of an individual (UGC, 2020).

Higher Education Quality Enhancement Project (HEQEP): The goal of Bangladesh's Higher Education Quality Enhancement Project is to raise the standard and pertinence of the teaching and

research environments in universities by fostering innovation and accountability on campus and strengthening the sector's institutional and technical capabilities.

Accreditation: The official and impartial confirmation that a course of study or organization satisfies set criteria for quality and is capable of performing particular conformance assessment tasks is known as accreditation (IAS).

OBE's Power Principles: OBE's four power principles include 'Clarity of focus' (on culminating exit outcomes of significance), 'Expanded opportunity' (and support for learning success), 'High expectations' (for all to succeed), and 'Design down' (from your ultimate, culminating outcomes) (Kilfoil, 1999).

Rubrics: A rubric breaks down the assigned work into sections and gives concise descriptions of the qualities of the work related to every topic and component, at different levels of proficiency and course objectives (Thirumoorthy, 2021).

Disclaimer (Artificial intelligence)

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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