

Advances in Higher Education Management

Lead Guest Editor: Xiao-Guang Yue

Guest Editors: James Crabbe and Kostas Gouliamos





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Education Research International

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Research Article

Approaches to Quality Education in Tertiary Sector: An Empirical Study Using PLS-SEM

Mohammad Ali Ashraf ¹ and Hasnan Ahmed ²

¹Department of Economics, United International University, Madani Avenue, Gulshan, Dhaka 1212, Bangladesh

²School of Business and Economics, United International University, Madani Avenue, Gulshan, Dhaka 1212, Bangladesh

Correspondence should be addressed to Mohammad Ali Ashraf; mashraf@eco.uui.ac.bd

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Quality assurance in education has been a critical issue in both private and public higher education in all emerging economies since World War II. Available theories on quality education are numerous, but their strategic models are sparsely sustained. The main objective of this study is, therefore, to articulate and to empirically test a conceptual model to assure and sustain quality in tertiary education grounding on a theory base presented by Chohen and Ball (2006). The model has three parts: independent components, i.e., quality inputs such as quality teachers, quality students, and quality staffs; mediating component, i.e., quality process such as quality programs; and target component, i.e., quality product such as quality education. Data ($n = 97$ private universities) were gathered from a report of the university grant commission (UGC), Bangladesh. The data were analysed following PLS-SEM using SmartPLS3 and SPSS software. Findings indicate that all of the predictors appear to be robust in predicting quality education. The results also indicate that the mediating construct has a significant partial mediating role in enhancing quality education in private universities. These outcomes will help academic authorities formulate the right policy option in assuring quality education in higher education institutes in Bangladesh.

1. Introduction

According to Leo Tolstoy ([1], p. 331), “What is important in knowledge is not quantity, but quality. It is important to know what knowledge is significant, what is less so, and what is trivial” (quoted in [2], p. 2). Nevertheless, quality is often referred to as a relative concept [3, 4]. Of late, quality evaluation and reassurance processes in providing higher learning have drawn huge responsiveness locally and internationally [5–8]. In reality, the quality aspect of tertiary education is regarded as one of the most important issues in all the emerging economies of the globe [8–10], especially in the country like Bangladesh where more than hundred private universities have been mushroomed during a span of two and half decades [5]. In this condition, the issue of enhancing quality education in the private universities in Bangladesh is, thus, considered to be one of the most

gigantic challenges by the academic researchers and policy planners [5, 8].

A large number of theories are also available on quality-related issues such as TQM [11, 12], service quality model or Nordic model [13], SERVQUAL model [14], and cue utilization model [15], to name a few. There have been a large volume of research papers on quality in tertiary education sector as well [16, 17]. However, most of the theories are focused on different goals in an isolated way [16]. The goal sometimes concentrates on refining course curricula or sometimes on training teaching staff in reformed tutoring methods. A number of such efforts have often been initiated aiming at instructional capacity building in the name of educational reform [6]. Thus, only few of such interventions have noticeable and considerable effects on teaching and quality education in higher education institutes, but they become rarely sustainable over time [10].

A rigorous review of research on improving quality education and professional experience suggests somewhat diverse and disheartening findings [16]. One such finding is that educational institutes face different challenges as they are complex organizations and are influenced by various socio-cultural phenomena including families, communities, and professional and controlling authorities [8, 18, 19]. Other studies show that recruitment of quality teachers requires high remuneration or fund which is also difficult for an institute in a developing country context [20, 21]. Another difficulty is that the emotional and health problems of students sometimes deflect educational issues [21].

The extent of effects of all these measures on quality education is also an important concern [23]. One of the explanations of small effects on quality education is that most higher education institutes are not facilitated with updated teacher training opportunities that would be needed to improve classroom instruction [24]. There are some other explanations too. Some focus on preuniversity education quality [10]. Few concentrate on involving parents to students' academic works [24]. Many intend to improve collegial interactions [25–27]. Most importantly, all these interventions are isolated and different in focus, design, and even approach [16]. Some concentrate mostly on a single factor design: developing curricula or academic programs, training academics in new methods, or adding new technology [28]. Besides, some target reading comprehension [29]; some aim at institutional decision making processes [30, 31]; and others concentrate on communities and students' welfare conditions [32].

For the field of sustainable practice, these diverse perspectives remind us that in properly-functioning HEIs, effective coordination is necessary for a well-functioning HEI that is rarely noticeable in the present formal systems [7]. Moreover, it often accuses that universities are getting to be more formal and bureaucratized, but there is a need for balancing between quality expectations and a space for open-ended processes [33]. Thus, the three components in our conceptual model also represent distinct underlying logics what ought to be present and matched in the institution. For instance, emphasizing only compliance with standards and merely being focused on accountability and not stressing academic development to ensure quality performance may make institutions stagnated over time [7]. So, quality outcome should focus on the practicalities in improving quality education in increasing complex institutional milieus [33]. Thus, conceptualizing quality input component can both work as a tool for analysing quality enriching processes within institutions and also to cater necessary modifications in formal designs and standards which are already in practice [37].

Based on these diverse experimental backdrops, the present article, thus, explores an integrated and distinct comprehensive conceptual model that represents a novel quality assurance module in higher education institutes incorporating the perspectives of three input components featured by “quality teachers, students, and staff” [38], the process component featured by “quality program” [7], and

the product component featured by “quality education or outcome-based quality learning” [36]. This unique new model also has been verified collating secondary data gathered from the Institute for Quality Assurance Cell (IQAC) formed under the auspices of the University Grant Commission (UGC) of Bangladesh.

The design of this study is as follows: first, the underlying theory is concisely reviewed, as are the pertinent literature on quality education in higher education institutes. Next, the conceptual model and hypotheses are provided, followed by a description of the research method and results from the data analysis. An explanation of the meaning of the findings and their implications ends the paper.

2. Quality Education and Past Literature

Factually, the term quality has been immensely debated concept in academia since ancient times [37, 38]. As for example, the antiquity of the scepticism and confusion about the nature of quality is brought out by an interesting conversation in one of the celebrated dialogues on “quality medicine” involving Socrates in 410 BC. Socrates speaks with Asclepeo, a fresher in the Hippocrates School of Medicine in Athens. Asclepeo is conversing with Master Socrates about different lectures at the school on the theme of “quality in healthcare,” and in the conversation, on the topic of quality medicine, Socrates asked Asclepeo, “What exactly is this thing called quality?” Asclepeo replied, “Well, Master Socrates, we did ask one of the professors how he recognized quality so that we might learn to do the same thing. He said that he just recognized good quality whenever he saw it and that it was the opposite of bad quality.” Then, Socrates asked again, “Did your professors tell you what were the elements of high quality and how you could measure these elements?” Asclepeo answered, “That, Master Socrates, was another confusing part of the lectures.” Finally, Socrates asserted, “Yes that certainly sounds confusing” ([39], pp. 855–856).

Etymologically, the term “quality” is evolved from the Latin word “qualitas” that means the degree of excellence of a thing [6, 40]. Since World War II, there have been myriads of efforts on building instructional capacity to enhance quality education that is rarely sustained over time. In this relation, Cohen and Ball [41] represent a theoretical model (Figure 1) to ensure quality education through building instructional capacity. This capacity building is grounded in interconnections among teachers and students around educational materials rather than separately focusing on them as the principal basis of instruction. On this view, each of the three elements is essential and all three factors are interconnected in the following way as delineated by Cohen and Ball [41].

Teachers' intellectual and personal resources stimulate instructional interactions by determining how teachers comprehend, interpret, react, and answer to materials and students [24]. They must have acquaintance with students' overall knowledge and capability to link and interact with

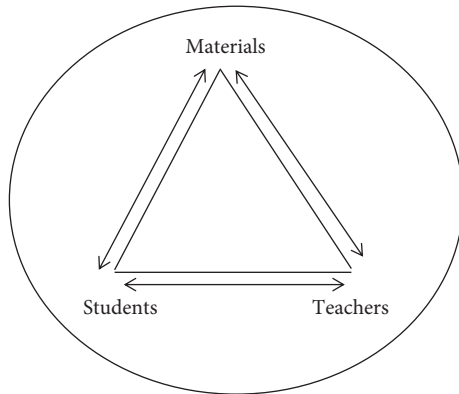


FIGURE 1: Instructional capacity building and quality education (source: [41]).

and knowledge about students and to establish classroom environments [24, 41]. In parallel to teachers' capacity enhancement, students' prior learning and experience, interests, devotions, and involvements are crucial to their apprehension, interpretation, and response to the materials and teachers. Finally, instructional materials include the texts, tasks, questions, problems, and program contents in which students remain engaged. Instructional materials can mediate students' engagement through technologies of instruction, including print, video, and computer-based multimedia. In this coordinated way, quality education can be assured in a sustainable fashion [41].

Similar to Cohen and Ball [41], Biggs [42] has also presented a model (viz. the 3P model) to ensure and sustain quality education. According to Biggs [42], the 3P model is characterized a student's accomplishment in terms of quality education and learning. In regards with the learning program, the design offered to learners seemed to inspire the type of cognitive expertise needed for critical thoughtfulness which requires complementary relations with pragmatic knowledge. As Confucius says, "Seeking knowledge without thinking is labour lost; thinking without seeking knowledge is perilous" (quoted in Cleverley [43]: 6).

Quality education has been a continuing issue of diverged interests, especially in an emerging economic context containing different economic, social, cultural, and institutional environments [8]. In gist, this divergence in its meaning principally subsumes: the multidimensionality of quality [19]; the multiple interpretations of quality viewing from different stakeholders' perspectives [31], comprising providers [19], product users [44], output users, and other concerned sectors [3], and (c) the dynamic change of quality that makes it vulnerable to vary in the milieu of a broader educational, sociocultural, economic, and political landscape [38]. For example, quality was initially recognized as institutional prestige [8], but due to lack of public trust in private higher education sector, institutions diverted their focus toward quality students and their learning [45, 46]. In recent times, institutions have shifted their attention to innovate pedagogical strategies, virtual lecturing, and digitalization in the present perilous context of the corona pandemic [47–49].

3. Conceptual Model and Hypotheses

The underlying conceptual model (see Figure 2) is to examine the quality of education for both public and private higher educational institutes based on the theoretical underpinning presented by Cohen and Ball [41]. This model also addresses the quality areas prescribed by Self-Assessment Manual of University Grant Commission of Bangladesh [50]. As mentioned earlier, the model consists of 5 types of quality constructs: (a) quality faculty, (b) quality student, (c) quality service, (d) quality program, and (e) quality education. For this model, quality faculty, quality student, and quality service are regarded as inputs to influence the quality program and quality education of quality graduates [51]. At the heart of the model remains the quality program of education which is regarded as the process and mediating variable to enhance the quality graduates with quality education as the outcome variable [3, 42]. There have been different features attached with input such as quality teachers, quality students, and quality staff [51], process such as academic program structure [42], and product such as quality education [3].

As Deming [11, 52] specifies production as a process, this concept of production process has been employed in the 5Q model. In this model, a quality product is the quality graduate who possesses day one skills and experiences necessary for carrying out professional tasks on a daily basis for attaining prespecified organizational goals and objectives.

3.1. Hypotheses Development. As mentioned earlier, the conceptualization of the 5Q model (Figure 1) is fundamentally based on Cohen and Ball [41] and Biggs [42] who underline their thesis to assure quality in education at large. The quality program lies at the heart of the 5Q model which apply teaching and learning approach in the process for ensuring outcomes-based learning in the academia. This paper has formulated ten hypotheses which are delineated in the next discussion.

3.1.1. Quality Teacher, Quality Student, and Quality Program. In this model, input featured by quality management includes three applied constructs such as quality teaching staff, quality student intake, and quality administrative service. According to the underlying theory [41], quality teacher is an important factor affecting learning outcome and student performance [53] through implementing quality academic program containing effective course curricula [54]. Thus, an urgent issue for both instructors and researchers is how to implement quality teaching program to quality students to achieve quality learning outcomes [55]. Wittek and Habib [17] and Ko and Chung [56] also emphasis on the instructional effects of teachers, including teaching methods, curriculum, and materials of teachers which can have an influence on academic program. So, based on these past studies including theoretical base, it can be postulated that both quality teacher and quality student are positively associated with quality program implementation. Thus, the formal hypotheses are as follows:

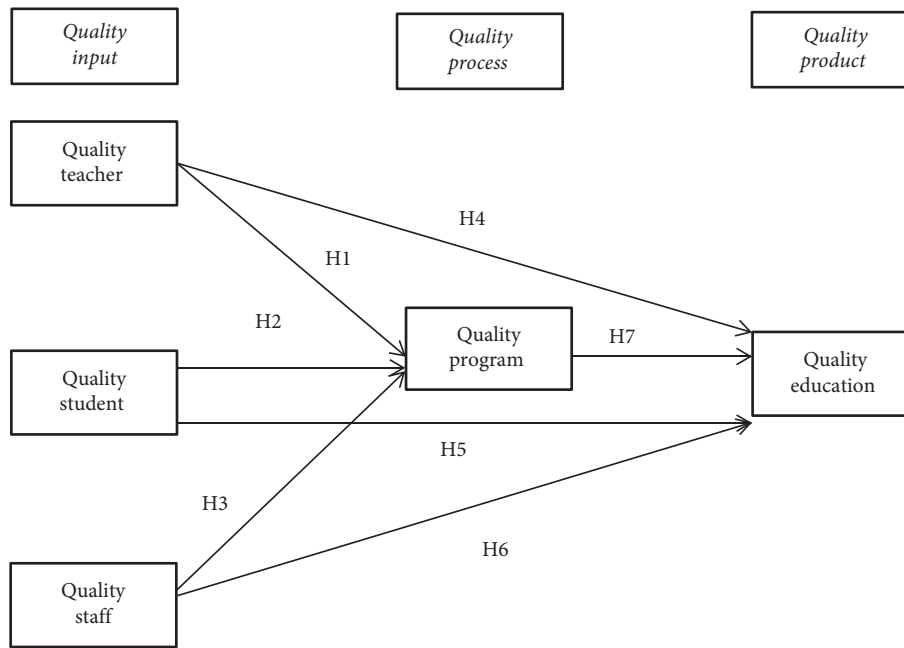


FIGURE 2: The 5Q model of quality education.

*H*₁: quality teacher has a positive relationship with quality program implementation.

*H*₂: quality student has a positive relationship with quality program implementation.

3.1.2. Quality Administrative Staff and Quality Program.

Administrative staff used to provide different types of services to stakeholders of an academic institution. These staff also can influence implementation of academic program or program curricula to render quality education to students and other stakeholders [54]. However, there have been few empirical studies on this particular context of academic issue, such as Ahmed and Masud [57]; Ashraf et al. [6]; Ashraf and Osman [58]; and Poole [59]. Ahmed and Masud [57] examine the relation between quality administrative service and quality program implementation and observe a significant positive association between them. Similarly, Ashraf et al. [6]; Osman and Ashraf [58]; and Poole [59] demonstrate that there is a positive significant relationship between quality administrative staff and quality academic program in higher education sector. Thus, it can be hypothesized that

*H*₃: quality staff has a positive relationship with quality academic program implementation.

3.1.3. Quality Teacher and Quality Education. According to Cohen and Ball [41], teachers' quality and students' performance in terms of learning outcomes are closely linked. School systems all over the globe admit that the quality of teaching is the most critical in-school factor impacting on student outcomes [60–62]. Similar finding has been obtained by Johnson [63] who remarks that individuals who care about children's education must agree that availing a good

teacher is a key to students' success in life. Of late, scholars have cautiously followed students' achievement over time and confirmed what parents long have known that the quality of their child's teacher can provide quality education and have lifelong consequences [63–66]. In parallel to these studies, empirical evidence suggests that there is a positive association between quality teaching and quality of education [67, 68]. Thus, it can be hypothesized that

*H*₄: quality teaching has a positive relationship with quality education.

3.1.4. Quality Student and Quality Education.

Understanding the quality teaching grounding in quality curricula and program is based on the quality characteristics of learners such as prior knowledge, ability, conception of learning, and language competence [41, 42], for this reason, student in-take ought to be scrutinized based on those quality student characteristics by which students can grasp the mission of quality program and achieve quality education [10]. If students are well-prepared in their preuniversity education, they will be able to digest the quality lectures delivered by the quality teachers focusing quality program in the lectures. However, empirical studies on this particular nexus between those two constructs are rare. Based on the content analysis and few theoretical models, it can be hypothesized that

*H*₅: quality student has a positive relationship with quality education.

3.1.5. Quality Staff and Quality Education. In fact, no school can operate effectively without its administrative and operational staff [69]. Be that as it may, quality staff provides quality services to different stakeholders of academic

institutions such as students, teachers, and parents or guardians of students [69]. Quality staffers functionally include administrative, dormitory, and crucially library departments and others. Library staff very substantially can provide rich collection of teaching and research materials which are essential to produce quality learning outcome. Without adequate supply of books, journals, magazines, and others, quality teaching and quality research are impossible. So, it can be hypothesized that

H₆: quality staff has a positive relationship with quality education.

3.1.6. Quality Program and Quality Education. Quality course materials or program is an important factor of overall quality education [41, 42]. Several studies demonstrate that there are positive relations between academic program or course design and quality learning outcome which is fit for both fast-paced and ever-changing current workplace environment [56, 67]. For this reason, Ritter et al. [67] emphasis on the increased complexity of today's work environment and change in curricula redesign for attaining required quality skills and learning outcome. In a recent study, Osman and Ashraf [4] report that quality program is observed to be positively significant to effect on quality program. All these instances indicate that there is a positive association between quality program and quality education. Thus, it can be hypothesized that

H₇: quality program has a positive relationship with quality education.

3.1.7. Mediating Hypotheses. According to Biggs [42], there is a positive relationship between quality teaching context and quality education. Biggs [42] also incorporated quality program as the mediating factor in the links between independent factors and quality learning outcome. Besides, Osman and Ashraf [4] report that quality program has a positive link with quality program. These research works imply that quality program has a mediating effect between quality teacher and quality education. Thus, it can be hypothesized that

H₈: quality program has a mediating influence between quality teaching and quality education.

Empirical studies conducted by Osman and Ashraf [4] and Osman et al. [10] reveal that quality student characteristics have a positive significant relation with quality education. Other studies also show that quality program is positively connected with quality education [4, 42]. Thus, it can be postulated that

H₉: quality program has a mediating influence between quality student and quality education.

The people that perform these roles determine how education is delivered and what it needs to develop and progress into the future [63]. Administrative functions also support teaching staff to deliver effective strategy to students and keep educational facilities operating [10, 69]. While they

may not necessarily be perceived as crucial to delivering quality educational services, without operational administrative services, the entire campus could be at risk. Thus, it can be hypothesized that

H₁₀: quality program has a mediating influence between quality staff and quality education.

4. Methodology

4.1. Data Sources and Sample. The data for the current study were obtained from the institutional quality assurance cell's (IQAC) report archived in University Grants Commission (UGC) office on the early period of 2020. The report is based on all private and public university's self-assessment results and an external peer review team's (EPRT) evaluation on quality education in tertiary sector of education. As per the UGC guidelines, each school of the private universities prepared a self-assessment (SA) report which was a contextual analysis of different educational issues associated with the quality indicators. The EPRT piloted physical verifications of the SA report while they witnessed the documents and interviewed the stakeholders such as faculty members, students, and administrative and top management authorities and awarded quality scores or points on ten indicators mentioned later in the measurement instrument section. Finally, the committee submitted a report called external peer review report (EPRR), which essentially highlights quality culture and status of the schools with reference to the ten quality education indicators.

To select the sample size, this study employed G^* Power to decide the minimum sample size needed based on statistical power [71]. As the conceptual model has four exogenous variables (predictors of quality education), the analysis selects the effect size as medium (0.35) and power required as 0.95. The calculation ended up with the required sample size was 96. Hence, the study decided to gather data which are equal to or slightly larger than the needed number of sample size. Generally, the minimum power needed in social science research is 0.8 as the minimum acceptable power [72, 73]. Besides, it is recommended for PLS-SEM to employ "10 times" rule of thumb as the rule of estimating the minimum needed sample size [74–76]. This guidance recommends that PLS-SEM needs a sample size of 10 times the largest number of paths in the structural model. According to this rule, the current study is required for a minimum sample size of 70. Thus, it can be safely concluded that a sample of 97 which is considered adequate for this study for ensuring a sufficient statistical power.

4.2. Measurement Instrument. The study considers the quality measures of two schools such as the School of Business and the School Engineering Sciences, which are mostly common in most of the private universities in Bangladesh. Five Likert type quality scales distributed as 1 (unsatisfactory), 2 (poor), 3 (good), 4 (very good), and 5 (excellent) were used to capture the responses for two schools' quality evaluations. These scales were based on ten quality education indicators which are as follows: (a)

quality governance, (b) quality curriculum design or program, (c) physical facilities, (d) quality student admission, (e) quality teaching, (f) assessment of student performance, (g) student support service, (h) quality staff and services, (i) quality process management for continual improvement, and (j) overall quality education and learning. In the research framework, a total of five variables of those quality indicators were employed such as quality teaching, quality students, quality staff and services, quality curricula and program, and quality education assessment. Among these variables, quality program is selected as the mediating variable in this study. For each of these variables, assessed quality scores for the two schools (School of Business and School of Engineering) were considered for data analysis. At the initial phase, the pretesting was done with a pool of two academicians, three administrative management experts, and five students to clarify and establish the content validity of the constructs. Later on, a pilot study comprising of 30 universities was conducted following Alam et al. [77].

4.3. Model Assessment Using PLS-SEM. The study applied component-based structural equation modelling, namely, PLS-SEM, investigating the predictive capacity of a mediating variable along with other antecedents which demands for using prediction-oriented PLS-SEM [78]. Following Anderson and Gerbing [79], we analysed the data at two stages: firstly, measurement model assessment, and secondly, structural model assessment. PLS-SEM is a statistical technique that permits a simultaneous equation modelling holding a large number of paths in a conceptual model comprising more than one dependent variable. PLS-SEM has been successfully employed in the social science research for a long time [78]. Thus, it is now widely applied in social science and business research [80, 81]. The conceptual model (presented in Figure 2) was run for attaining factor analysis. The path analysis with item loadings appears in Figure 3. Item loadings were checked to confirm that they are all above 0.6 [78]. The statistical significance of the paths in the model was tested using jackknifing procedure, with a sample size of 1, for 5000 samples. Using one-tailed tests, all seven paths were found statistically significant, four at the $p < 0.01$ level, and three at $p < 0.05$ level, providing support for H_1 , H_2 , H_3 , H_4 , H_5 , H_6 , and H_7 . The evaluated model is presented in Figure 4, with critical ratios, t -statistics, R^2 , f^2 , Q^2 , and VIF listed in Table 1.

5. Results

Based on the procedure advanced by Hair et al. [78], the study examined the reliability, convergent validity, and discriminant validity. According to Hair et al. [78], the item loadings, composite reliability (CR), and average variance extracted (AVE) must exceed 0.60, 0.70, and 0.50 to ratify the item reliability, construct reliability, and convergent validity of the constructs, respectively. Table 2 demonstrates that all the factor loadings, CR, and AVE exceeded the suggested

threshold levels. Thus, both the indices of reliability and convergent validity in the sample are established.

Moreover, the authors inspected the validity of the constructs in terms of discrimination by applying Fornell and Larcker method. As shown in Table 3, the coefficient of correlation value of any cell is smaller than the square root of AVE values in its corresponding row or column. Hence, the model is said to have discriminant validity [82].

After examining the outer model's reliability and validity, the analysis of the study checked the inner model. In this research, typical 5-step methods were followed as recommended by Hair et al. [78] to run the structural model by PLS-SEM. In the next section, those steps are delineated one by one.

Accordingly, the study first addressed the multicollinearity problem before conducting the structural path analysis. It is recommended that the predictors of the criterion variables must be free from multicollinearity issue. As is evident in Table 1, the calculated VIF-variance inflation factor values are lower than 3.3 [83]; there is no such problem of multicollinearity in this study.

In the second step, the study analysed the prepostulated structural associations by employing the bootstrapping technique with 5000 resamples. As presented in Figure 2 and Table 1, all the hypothesized relationships are observed to be significant. Notably, quality teacher ($\beta = 0.496$, $t = 1.906$, $p < 0.001$), quality student ($\beta = 0.375$, $t = 5.047$, $p < 0.001$), quality staff ($\beta = 0.230$, $t = 2.339$, $p < 0.001$), and quality program ($\beta = 0.379$, $t = 4.172$, $p < 0.001$) have positive and the highest impact on quality education as an outcome variable in the research framework supporting H_5 , H_6 , and H_7 , respectively. Similarly, quality student ($\beta = 0.139$, $t = 1.524$, $p < 0.05$) and quality staff ($\beta = 0.280$, $t = 1.857$, $p < 0.001$) also have positive and significant influence on quality program which support H_1 , H_2 , and H_3 , respectively. In the similar fashion, quality student ($\beta = 0.117$, $t = 1.431$, $p < 0.05$) has positive and significant influence on quality education and supports H_4 . Besides, quality program has partial mediating effects in the links between quality teacher and quality education ($\beta = 0.819$, $t = 14.359$, $p < 0.001$; $VAF = 0.474 > 0.20$), quality student and quality education ($\beta = 0.628$, $t = 6.306$, $p < 0.001$; $VAF = 0.507 > 0.20$), and quality staff and quality student ($\beta = 0.739$, $t = 9.817$, $p < 0.001$; $VAF = 0.670 > 0.20$) partially supporting H_8 , H_9 , and H_{10} . According to Hair et al. [76], partial mediation is demonstrated when variance accounted for (VAF) exceeds the 0.2 threshold level and that full mediation is demonstrated when it exceeds 0.8.

Third, the explanatory power of the predictors of a dependent variable in terms of coefficient of determination R^2 was obtained from the path analysis. Figure 2 and Table 1 represent the R^2 values for quality teacher and quality education as 0.713 and 0.952, respectively, indicating that those two constructs have strong coefficient of determination and the models have substantially high explanatory power [76].

Fourth, the study calculated the effect size of f^2 of each of criterion variables flowing [84]. According to the guiding principle, the f^2 value of 0.02, 0.15, and 0.35 is interpreted as small, medium, and large effect, respectively [85]. Table 1

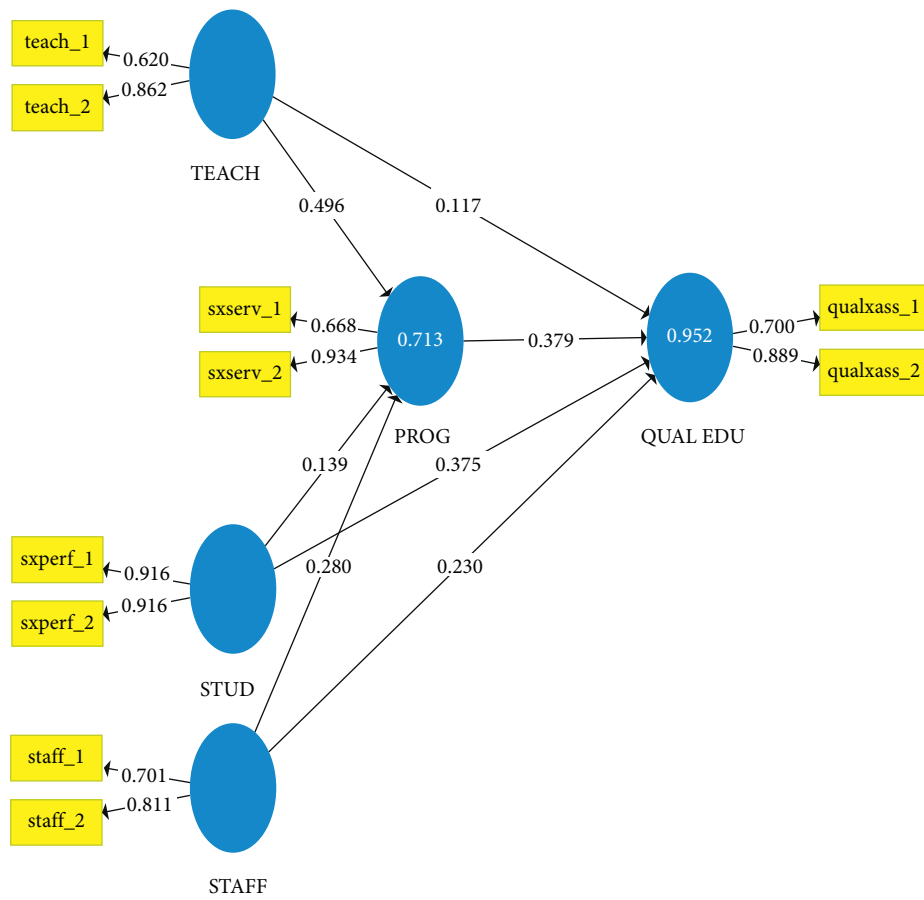


FIGURE 3: Path analysis results.

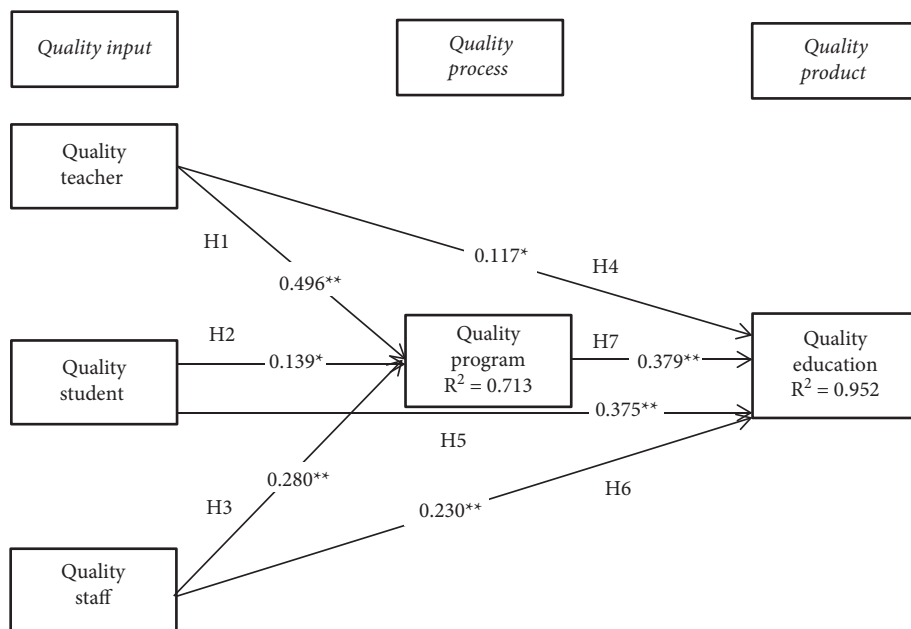


FIGURE 4: Evaluated model.

TABLE 1: Path analyses evaluation.

H	Relationship	Beta	SE	t value	Supported	R ²	f ²	Q ²	VIF
Direct effects									
H ₁	TEACH → PROG	0.496	0.260	1.906**	Yes	0.713	0.167	0.382	3.128
H ₂	STUD → PROG	0.139	0.151	1.524*	Yes		0.025		2.720
H ₃	STAFF → PROG	0.280	0.016	1.657*	Yes		0.098		2.784
H ₄	TEACH → QUAL EDU	0.117	0.013	1.431*	Yes	0.952	0.048		3.185
H ₅	STUD → QUAL EDU	0.375	0.074	5.047**	Yes		1.051	0.529	2.787
H ₆	STAFF → QUAL EDU	0.230	0.099	2.339**	Yes		0.363		3.150
H ₇	PROG → QUAL EDU	0.379	0.091	4.172**	Yes		0.861		3.020
Mediating effects									
H ₈	TEACH ** PROG → QUAL EDU	0.819	0.057	14.359**	Yes				
H ₉	STUD * PROG → QUAL EDU	0.682	0.043	6.306**	Yes				
H ₁₀	STAFF * PROG → QUAL EDU	0.739	0.035	9.817**	Yes				

** $p < 0.01$; * $p < 0.05$.

TABLE 2: Measurement model evaluation.

Construct	Item	Loadings	CR	AVE
Quality teacher	TEACH1	0.620	0.705	0.563
	TEACH2	0.862		
Quality student	SXPERF1	0.916	0.900	0.838
	SXPERF2	0.916		
Quality staff	SXSERV1	0.701	0.796	0.575
	SXSERV2	0.811		
Quality program	PROG1	0.668	0.809	0.659
	PROG2	0.934		
Quality education	QXASS1	0.700	0.778	0.640
	QXASS2	0.889		

Note. CR = composite reliability; AVE = average variance extracted.

TABLE 3: Discriminant validity.

Construct	1	2	3	4	5
Quality teacher (1)	0.751				
Quality student (2)	0.744	0.916			
Quality staff (3)	0.740	0.540	0.758		
Quality program (4)	0.726	0.679	0.747	0.812	
Quality education (5)	0.735	0.784	0.708	0.790	0.800

Bold values on diagonal represent the square-roots of AVE values provided in Table 2.

illustrates that quality student, quality staff, and quality program have large effects on quality education variable. However, quality teacher has medium effect on quality program. Furthermore, all other independent variables have small effect on their corresponding dependent variable.

Finally, the study examined the predictive relevancy (Q^2) of the model following Henseler et al. [80]. The model is considered to have predictive relevancy if the Q^2 value is more than zero [78]. As represented in Table 1, the Q^2 values for quality program and quality education are 0.382 and 0.529, respectively, indicating that the predictive relevancy is medium and high correspondingly.

6. Discussion

One of the underlying premises is quality input such as quality teaching staff, quality student, and quality administrative staff can impact on quality program identified as quality process which, in turn, influences quality education

identified as outcome variable. It has been observed from the analysis of outputs that quality teaching staff has positive and significant impacts on both quality program and quality education. These findings are supported by several scholars in the similar context of quality assurance in education [63, 86]. The positive influence of quality student on both quality program and quality education has also appeared significant. Notably, quality student has a robust influence on quality education. Similar observation has been echoed by Morrison and van der Werf [87] who notice that student performance has strong effects on entry and has moderate effects on attrition and completion. These outcomes are compatible with the quality graduates produced by the high ranked academic institutes all over the world [4].

Besides, quality administrative staff has positive and significant effect on quality program and quality education. There is evidence that administrative staff has a collaborative and associative role in facilitating different services to teaching and research activities which are considered to be

important resources for innovative knowledge creation and further development [87]. This outcome corroborates several earlier studies in the similar field [69]. The assumed positive effect of quality program on quality tertiary education has also appeared highly positively significant. Rich contents of curricula and academic program are empirically proven to be associated with enhancing quality education and this outcome is consistent with the numerous scholarly works [41, 68, 86, 88–95]. Besides, quality program has observed to be mediating in the link between the three quality inputs and quality tertiary education. These types of mediating roles of quality program are evident in several earlier scholarly works in the similar context [42].

6.1. Implications for Research and Practice. First of all, the underlying theory helps construct the current conceptual model. Theoretically, it shows its robustness for aiding to explain and predict quality education in tertiary sector. One of the most important contributing implications for research in the current study is that quality curriculum or quality program is observed to be the strongest factor to influence quality education as well as to perform as a mediating variable. The second most important contributing lesson of this study is that quality student and quality staffers are also found to be robust to impact on quality education. Thirdly, quality teacher demonstrates significant influence on both quality program and quality education. As a general theory, Cohen and Ball [41] suggest that the three quality inputs such as quality teachers, quality students, and quality staff are instrumental to directly determine the quality program which, in turn, highly influences overall quality education. So, this study implies that the underlying theory yields efficient results in terms of predicting and explaining quality indicators of quality education in the tertiary education sector. Thus, as a general theory, these explanations contribute to connect to an overarching theoretical perspective or framework.

From practical perspectives, these results imply that all five quality variables ought to be carefully incorporated in the plan that pursue enhancing quality education outcome. As a matter of fact, in addition to the variables identified in the research framework, there are other factors that can affect quality education such as governance, physical facilities, process management, research, and extension. As more and more empirical works on quality education will emerge, it would be easy to advise policy planners and responsible authorities to formulate right educational materials and maintain proper process management. In this study, the one area of findings that may help academic authorities the most concerns quality processes or programs.

7. Conclusions

The main objective of the present article is to examine a research model that articulates a few factors of quality assurance in education. This study concludes that quality assurance in education is a key dimension in the successful accomplishment of any educational institution. Based on the

projected research structure, quality education can be enhanced through the employment of quality faculty members, admission of quality entrant students, and provision of quality administrative services to the concerned stakeholders.

This projected research model is a conceptual model which has been quantitatively investigated to check the model's predictability as well as its explicability. The relevance, practicality, and adequacy of the framework ought to be examined as well in further empirical studies. These types of testing of this research model in further empirical procedures would cater helpful information and insights to professionals when utilizing the framework. The present paper does not demonstrate explicit competencies and extensive variables that put effects on graduate record in the job sector. More empirical research works ought to highlight different explicit competencies that affect practical works of the graduates based on different contexts.

Data Availability

The data used to support the findings of this study will be available on request from the corresponding author.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Research Article

Enhancing Teaching and Learning through Peer Observation: An Indian Case Study

Avita Katal ¹, Vijay K. Singh ², Tanupriya Choudhury ¹ and Faisal Imran ³

¹School of Computer Science, University of Petroleum and Energy Studies, Dehradun 248007, India

²School of Law, University of Petroleum and Energy Studies, Dehradun 248007, India

³Department of Computer Science and Engineering, Daffodil International University, Dhaka, Bangladesh

Correspondence should be addressed to Faisal Imran; faisalruetmse09@gmail.com

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Peer observation demands the teaching community to observe each other's teaching practice followed in classrooms and to learn from it. It focuses on individual requirements and learning by receiving and providing constructive feedback. This study gives detailed information about the purpose and principle of peer observation along with the steps followed in the peer observation cycle. The data gathered are from postobservation forms and meetings. Feedback from peers is used to demonstrate the importance of peer observation in improving the overall teaching experience. The results indicated that there is a significant improvement in the teaching style of the instructors. The category of attaining student attention and engagement grew by 28.8 percent, while the category of students demonstrating passion and motivation climbed by 15.27 percent. Peer observation is seen as a beneficial tool for teachers' professional development. Teachers stated that peer observation reduced their worry, hesitancy, and pressure throughout the teaching process, making it more dependable and real. However, participants identified time constraints and teachers' lack of observation expertise as barriers to peer observation.

1. Introduction

Teaching being one of the main components of educational planning plays a crucial role in educating children. Despite the importance of effective teaching, the results are far from ideal. Researchers have started a movement toward instruction attentive to students' variance, focusing on students' readiness, learning profile, and interest. Bell proposed the concept of peer observation in 2005 [1]. It is defined as the collaborative developmental activity in which the faculties or the professionals provide support to each other by examining each other's teaching and discussing and explaining the observations that they made. They exchange different ideas about teaching, collect feedback from the students/peers, and check out the new ideas that could possibly improve the way of teaching [2]. Peer can be a colleague from the same or different school/department. He can also be a skilled teacher having years of experience in teaching. However, peers should be willing to support other

peers throughout the entire duration of the observation activity. The value of the one-to-one relationship, which is usually between two faculties and intends to promote continued professional development, is a distinguishing feature of this model [3].

Peer observation is an important element of social cognitive theory where observational learning occurs. This asserts that people witness and experience another person's behaviour and then replicate it. Participating in social experiences teaches people a lot. Observing other peers not only helps in increasing current knowledge but also helps in building confidence and thus enhancing the self-efficacy for teaching. Observation is not merely about copying others' styles. It inspires the peers to try new pedagogies in classrooms and helps them to figure out what they have been trying in classrooms is in line with the good teaching quality practices. Faculty tries to adapt and modify techniques in classrooms to see what works best for them. Peel [4] presented the idea that peer teaching has two main purposes:

management of performance and overall development. The developmental peer observation in teaching is an integral part of the academic development program and can be formal. It offers a platform to discuss the practices related to teaching openly. Hence, it leads to reflections on teaching and fosters debate on the best practices of teaching [5].

Peer review of teaching (e.g., observation) is a professional responsibility that is critical to teaching quality. Huston and Weaver [6] asserted “the value of peer coaching as a form of continuing professional development for experienced faculty is largely unrecognised.” According to Chism [7], “good systems can be introduced and can flourish with focused attention.” In the long term, the investment can yield significant benefits for the health of academic units.

In education, peer observation of teaching can take various forms. There are three types of observation models that are widely accepted: evaluation, developmental, and collaborative [8]. These models differ depending on who conducts the teaching observation and the purpose of the observation. The evaluation model is primarily for managerial purposes, is generally judgmental, and involves managerial or academic staff monitoring teaching quality to ensure compliance with standards and the promotion of best practices [8]. Two other models are less judgmental and more formative in nature. The developmental model employs an educational expert as an observer, while the collaborative model employs an academic colleague who observes each other in a reciprocal arrangement [8]. “The forms of peer review used in higher education can be distinguished by contrasting assumptions about the purpose or function of peer review and the implications of that function for academic authority and power relationships” [9]. Nonetheless, the objectives of any peer observation of a teaching model or experience are multifaceted. According to Martin and Double [10], the goals of peer observation of teaching models are to (1) extend and improve an understanding of personal approaches to curriculum delivery; (2) develop and refine curriculum-planning skills in collaboration with a colleague; (3) improve teaching technique/styles of presentation through collaborative practice; and (4) engage and refine interpersonal skills through the exchange of insights relating to the review of specific curricular materials.

Online learning and teaching are becoming a more essential component of the institutional offer. It is critical that standards are upheld throughout all modes of practice. Faculties are asked to accept new ways of teaching and pedagogical techniques fit for the environment as online teaching via virtual classrooms grows in popularity. One method is to do peer observation online. Staffing arrangements are evolving in tandem with increasingly flexible learning and teaching styles. Part-time, on-demand, and remote teaching staff can build and experience a stronger sense of institutional connection through online peer observation. Online peer observation allows for the exchange of best practices in the online world. This guarantees that online innovation spreads in the same manner that classroom invention does. The majority of faculty new to online teaching lack that foundation of online learning experience,

whereas trainee instructors beginning out in classroom teaching may depend on personal classroom learning experiences dating back to their early years at educational institutions. Face-to-Face or classroom-based peer observation involves peers/observers attending a distinct lecture, whereas online learning environment classes’ observation is not straightforward as suggested by authors [11]. The observation in online mode is without the usual natural time boundaries where the peers can observe recorded sessions multiple times. It leads to better observations and feedback.

This paper reports the evidence from a study of faculties pursuing the Post-Graduate Certificate in Academic Practice (PGCAP) program. The study involves observing a colleague’s teaching online, which helps the observer and the observee to enhance their confidence and apply the newly learned strategies in their own teaching. Observing a colleague’s teaching might help validate elements of the observer’s approach that are working well. Being observed, on the other hand, has been proven to cause temporary emotions of vulnerability in certain employees, while feedback from the observer has typically been considered to be beneficial. We address the implications of our methodology for institutions and/or organizational units contemplating using peer assessment as part of a comprehensive methodology for effective teachings and learning.

This paper presents the different stages of peer observation and describes the mechanism for effective peer observation in the university. In the subsequent sections, the paper also shows that peer observation is very effective in enhancing the teaching of the instructor and proves to be efficient in the overall development of the educator.

In this study, the following four research queries were addressed:

RQ1: what mechanism is followed to collect and analyze the data?

RQ2: how observing the peer’s session helps in improving the teaching practice?

RQ3: does self-teaching enhance by observing the session of the skilled teacher?

RQ4: do instructors see peer observation as a useful tool for continuing their professional development?

2. Background of Peer Observation

Great teachers are not born but made by constant efforts of nurturing by persistent and concerted efforts to improve their knowledge and skills. An important quality of a great teacher is that he understands the teaching-learning process in depth, which helps him in appreciating the profession he is in and as well the process of imparting education. Learning is a transformation that occurs because of acquiring new knowledge, comprehending empirical law, or altering one’s mindset, among other things. Training brings a transition that is not just coincidental or inevitable with the passage of time, and it is a long-term transition that has been brought in consciously. Different learning models proposed by various

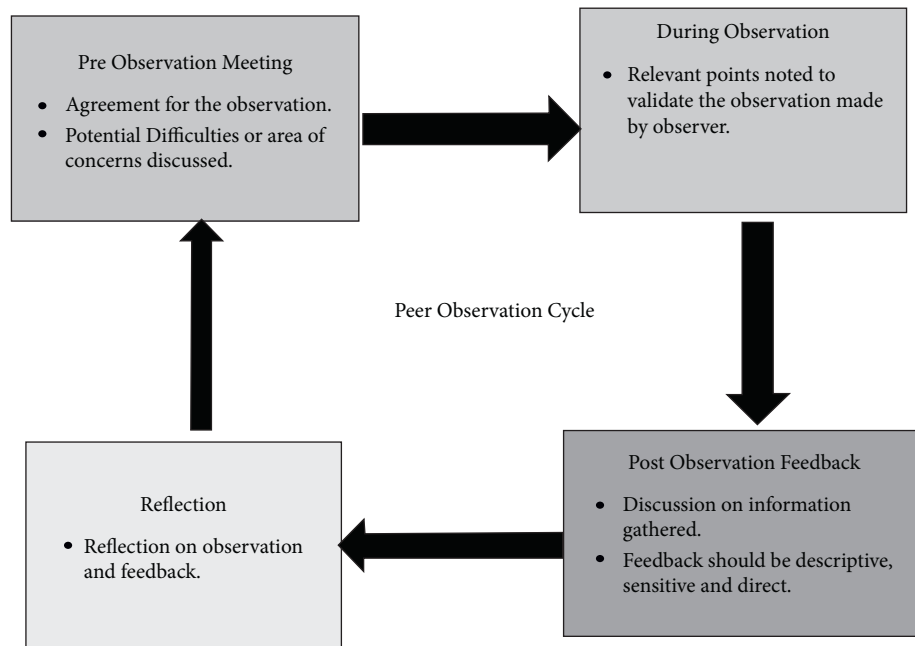


FIGURE 1: Peer observation cycle. Peer observation cycle occurs in multiple steps that mainly include preobservation meeting, observation, postobservation feedback, and reflection.

researchers can make this process more effective. The learning model defines a specific way of absorption of information. Faculty applies the learning model, which suits them and makes the process more efficient and easier. One such model is the reflective model that has been described in detail by Kolb [12], Gibbs [13], and Brookfield [13]. Reflection is the basic part of the teaching and learning process. It is a systematic way of reviewing practices followed in teaching, which helps to learn from one's experience to the next, making sure that the learners make maximum progress. More appropriately, reflective practice is described as learning through and from experience that aids in the development of fresh insights about oneself and one's practice [14]. It makes the practitioners aware of their own professional knowledge and action by questioning the already established ways/practices and evaluating them critically to practice situations.

The reflection process needs to be repeated. It inspires individuals to work collaboratively with others, to share best practices and draw support from them. Figure 1 shows the stages in the peer observation cycle, which are described in detail in sections.

2.1. Identifying Peers. Identifying peers [15] that will be involved in the observation process is of utmost importance. The relationship between the observer and the observee is critical to a successful observation of teaching. Chism [16] suggests that effective peer observation programmes ensure that the "observed teacher and the observer be trusted and respected by each other," emphasising that feedback should be candid, yet tactful, and clear communication between the observer and observee should be fostered. Both parties

should be supportive of receiving the feedback and acting on it to improve their teaching quality that in turn helps the learners. On the contrary, according to Keig [17], peer observation of teaching studies indicates that "colleagues who respect and trust each other can be invaluable in helping improve each other's teaching." One way of getting formative and supportive emphasis on feedback is to let the observee decide who would observe them and what aspects of their teaching their peers should observe, receive feedback, and take follow up on. However, changing the peer pairings can prove to be fruitful in providing critical and constructive teaching findings in due course of time. According to Hammersley-Fletcher and Orsmond [18], the observer should provide "as objective a view of the teaching session as possible, and review and reflect on that experience with the observee in a way that informs future thinking and practise."

A peer chosen can be from the same school or a different school or can be a skilled faculty too. It is better to have a peer who understands the subjects and can comment on the teaching of certain subjects knowing the criticalities of teaching it but at the same time having peers from other schools helps in observing the teaching process rather than the content of the lecture. Peers can also be at different levels of experience, so it becomes important that power does not get in the way of providing mutual support and genuine feedback to each other during the process of improving teaching pedagogies. Some other ways of choosing peers include the administration team deciding the learning sets randomly or alphabetically. Whatever system or process may be to choose the peers, the borderline remains the same that the opportunities must be created for broader discussion and outcomes.

2.2. Preobservation. The first stage of the peer observation cycle is a preobservation meeting where the observer and the observee get an opportunity to discuss how the observation will be organized, where the faculty is supposed to be assessed and what kind of feedback is sought. The observer gets to know where the lecture will be conducted, what is the level of the target audience, how well the faculty knows the learner set, what kind of interaction is expected from learners, what would be the learning outcomes for the session, how the observer will be introduced to the learners, and so on. All the points discussed are recorded in a pre-observation form and are discussed in a preobservation meeting. The main points covered in the form are as follows:

- (1) Aim/objective/outcomes to be achieved during this session
- (2) Description of the learner's profile and their understanding level
- (3) Teaching pedagogy to be adopted with appropriate reasons for learner needs and equal opportunities
- (4) Resources/tools to be used
- (5) Scope for participation and interaction
- (6) Techniques to be applied to measure the extent of the student's learning during this session

2.3. Observation. The observation phase not only adds value to the teaching skills of the observee but also helps gain insights into the teaching skills of the observer. The observer should arrive in the class early without causing any hindrance or suspicions in the mind of the learners. He is not supposed to take part in class activities, but the presence of the observer should be explained to the learners [19]. They should be made well aware of the fact that the observer is not there to judge their efficacy or performance. The faculty should deliver the lecture in the same way as they do on a regular basis without being affected by the presence of the observer. This helps to get better and actual feedback for the session. The students are given a choice to decline the observation-taking place in their class. It is also important to note that, for better results, the faculty should try to focus on the facilitation of the lecture (teaching process) rather than on the content of the lecture until and unless he has not asked for comments and discussion in those areas in pre-observation meetings. Making notes of the points during the session helps the observer to give detailed feedback to the observee/faculty without missing anything.

2.4. Postobservation. A meeting is arranged between the observers and observee right after the session to have a discussion on the feedback. Some observers note down important points during the session. Nevertheless, it is still important to have a postobservation meeting as quickly as possible as it helps to easily recall the details of the session and thus facilitating reflection by the observer and observee. If it is not possible to have a meeting as soon as possible after the session, it becomes very important that the observer has noted down the points to make sure what worked well in the

session, what went wrong, and what are the areas of improvement and concern. In addition, the observer is supposed to submit a postobservation form, particularly in the areas where the observee has sought feedback. Some of the key points that are to be observed and are a part of the postobservation form are as follows.

2.4.1. Aims/Objectives/Outcome of the Session. Setting objectives and aims for the lecture is very important as it helps in setting direction for the learning process (the contents, session aims, and learning outcomes). Hence, it is one of the main factors to be observed in the activity. When the objectives are communicated to the learners at the beginning of the session, learners get the connection of what they are learning and why they are learning. They know where they have to pay attention and where they may need support from their instructor. This in turn helps the students to set personal learning objectives, which keeps them motivated.

2.4.2. Content Clarity, Research, and Update. The content used by instructors should be clear and up to the mark. They learn more from examples and case studies rather than starting from basic principles and building the knowledge further.

2.4.3. Clarity of Content Delivered. Simple and logical presentation of course material aids students in comprehending the point of each lesson and making the subject easy to follow and remember. It is important to connect students with the course in both face-to-face and online settings. Being concise and avoiding spending too much time on minor details help students to learn what the faculty wants them to learn. The less the content dumped on students at a given time is, the better it is.

2.4.4. Display of Enthusiasm and Motivation for Students. Teacher enthusiasm is widely regarded as one of the most important and admirable traits and attributes of good educators and hence regarded as one of the important observation points. An enthused instructor instills enthusiasm, fun, and suspense in the classroom, encourages students to participate, and encourages them to explore. As a result, teacher passion piques students' interest and motivates them to read. Teacher excitement results in higher teaching evaluations, favourable attitudes toward faculties, increased student achievement, and a stronger learning environment [20].

2.4.5. Choice of Tools for Delivery. Faculties use teaching resources to assist students in being self-directed and strategic learners. Faculty adopts new and innovative methods rather than using traditional teaching techniques that make students sleepy in the classrooms [21]. Techniques like polling used between the lectures help students listen to the lecture carefully and answer. Visual media surround today's learners. They are accustomed to accessing

information in both textual and visual forms. Using images in lectures is a pedagogical strategy that helps in gaining the attention of students. Many of the learners are more inductive than deductive in nature. Making a course engaging by the use of interesting anecdotes, animations, or illustrations in the lectures not only motivates students to study hard but also helps them to succeed.

2.4.6. Student Attention and Involvement. One of the major challenges is to gain students' attention, especially in online lectures; hence, it is one of the key factors to be observed and evaluated during a peer observation activity. There are different ways to gain student attention. Some of the ways include changing the level and tone of voice that signals the students to pay attention, using a visual related to the instruction and not commenting on it immediately, and focuses students' attention on the course content, which afterward leads to a productive session [22].

2.4.7. Classroom Management. Classroom management refers to "the process through which faculties and educational institutes develop and maintain appropriate student conduct in classroom situations" [23]. The goal of implementing classroom management strategies is to increase students' prosocial conduct and academic involvement. Evertson and Weinstein [24] defined classroom management as the behaviour teachers receive to build a strong foundation for participants' education and socialisation. According to Brophy [25], "classroom management refers to actions taken to create and maintain a learning environment conducive to successful instruction (arranging the physical environment, establishing rules and procedures, maintaining students' attention to lessons, and engagement in activities)." Both definitions emphasise the importance of the teacher's actions to facilitate student learning. Effective classroom management not only creates and maintains an organized atmosphere in the classroom but also improves student learning, promotes psychological and emotional development, and reduces misconduct.

2.4.8. Treated Students with Respect and Gave Equal Opportunity. The notion of equality and tolerance, often known as multiculturalism, is the encouragement and acceptance of individual diversity. Individuals must be treated consistently and fairly regardless of their race, gender, age, handicap, sexuality, or gender identity [26]. Equality affirms that each and every trainee, irrespective of race, should get the same access to the top education. It also necessitates that all pupils be held to the same benchmarks and goals, irrespective of their situations, skills, or perceptions [27]. Equality in education has traditionally been viewed as a matter of more evenly or fairly dividing educational and education-related resources [28]. Essentially, no matter where they come from or what needs they may have, everyone gets the same thing. Diversity is about recognizing and accepting individuals. Promoting equity and diversity in the classroom benefits both faculty and learners and hence

becomes a key observant point. The aim of the faculty is to create a classroom environment in which all students can excel together and recognize that human characteristics make them unique.

2.4.9. Confidence and Professionalism. The teacher should be prepared to anticipate the challenges of specific classes and should be confident when he meets new challenges or the education landscape changes or he has to modify their teaching pedagogy.

2.4.10. Effective Use of Questioning. Although it seems to be a straightforward job, posing questions is perhaps the most important weapon for educators. Educators inspire a student to new heights of vision and understanding if the right questions are asked to the right student at the right time. A good question can excite, annoy, or comfort the student, and it can lead to a surprising amount of insight and vital awareness. The levels of questions require students to answer three kinds of questions about a text: factual, inferential, and universal (levels of questions). Factual questions (level one) may be clearly addressed by facts in the paper, inferential questions (level two) can be answered by evaluating and interpreting specific portions of the text, and general questions (level three) are open-ended inquiries presented by concepts in the text. They are intended to spark a discussion on a broad subject or issue.

2.4.11. Teaching Strategies and Resources. Lecture remains an important means of conveying knowledge. Case methods where students are allowed to adapt what they learn in the classroom to real-life situations are also an important means of disseminating and applying information. Discussions are used to better focus on huge groups of people. Problem-solving sessions, collaborative small groups, games, case studies, role-playing, and other practices that require students to put what they have learned into practice are examples of active learning [29], which is one of the most acceptable and effective teaching strategies. Along with the mentioned strategies, cooperative learning and distance learning are also very popular.

2.4.12. Providing Clear Feedback (If Any). Important insights or suggestions which observers feel are important to be shared with the observee go under the category of providing clear feedback (if any).

It is difficult to provide critical feedback, but it is also important to note that the observee and observer should benefit from this experience. Some of the key points that should be kept in mind while providing feedback are as follows [30]:

Positive articulation: the feedback though critical should also praise/affirm and acknowledge the achievements and efforts put in by the observee

Realism: the comments made in the feedback should be concrete and grounded and should focus on observable behaviour

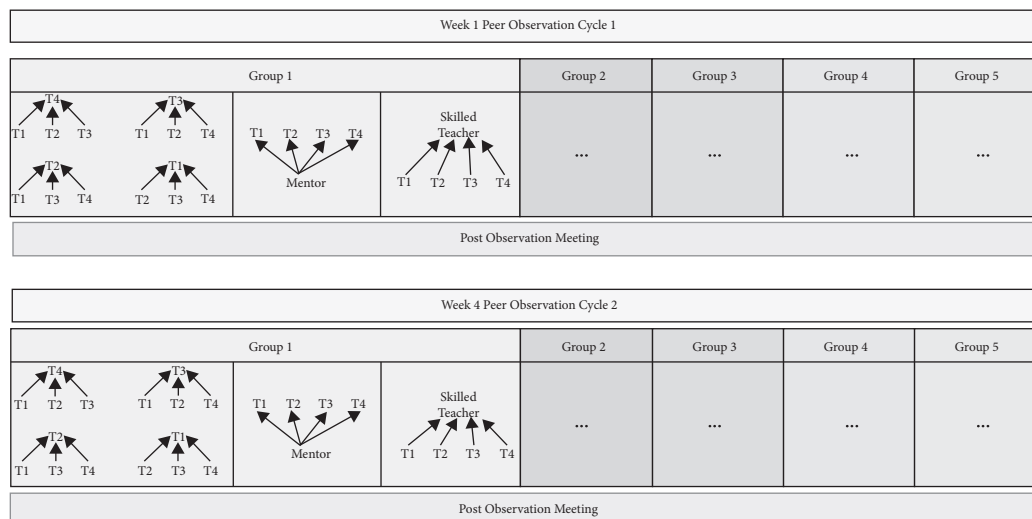


FIGURE 2: Sources of data collection. Peers observed each other's sessions and provided feedback. Mentor and skilled teachers who also observed the peers' sessions provided feedback that was also added to the data being analyzed.

Result-oriented: the feedback must focus on suggesting a course of action to achieve the teaching pedagogy where the observee was lacking

2.5. Reflection. The postobservation comments and discussion lead to reflection where the observee chalks out a plan or a course of action to improve the concerned areas. The observer reflects on the process of observation and what he has learned from that experience. It is useful to do the peer observation activity in a cycle to develop a critical reflection on teaching sessions and outcomes. Reflective education is a strategy in which teachers assess the relative effectiveness of their educational approaches by reflecting on their own teaching activities. Changes in teaching methods might be predicted based on the outcomes of this methodical approach that focuses on reflection. Reflection is one of the most effective activities of professional educators (whatever the subject matter).

3. Participants and Site

During the lockdown period of the novel coronavirus disease 2019 (COVID-19), the higher learning subnetwork, from primary to tertiary level, has crumbled not only in India but also globally. The peer observation done in this study was for synchronous online education followed in the University of Petroleum and Energy Studies, Dehradun, India. It looked forward to an intellectually enriched opportunity for future academic teaching-learning process improvement during any adversity. Twenty-one faculty members were selected for their level of experience to participate in the study under Post-Graduate Diploma in Academic Practice after discussions with the heads of different schools and the interview process. These participants were divided into 5 groups. Each group was assigned a mentor (a faculty with 15+ years of experience). The justification for purposefully selecting the aforementioned

mode and participants was that it was far easier for us to conduct this activity in synchronous mode on blackboard online platform used during pandemic times when social distancing was being followed, and all educational institutions were running online.

4. Data Collection

RQ1: what mechanism is followed in order to collect and analyze the data?

The data collected in peer observation were mainly from four major sources. The process of data collection is as shown in Figure 2:

- (1) Feedback from the preparatory session that was held as a part of the boot camp. It demonstrated how peer observation should be performed, followed by feedback and reflection.
- (2) Feedback from peer observation that was collected for two subsequent cycles in order to determine how effective it was in improving the teaching and learning process.
- (3) Utilization of skilled teacher's lecture observation and feedback for each peer observation cycle.
- (4) To aid the process, feedback from an assigned mentor with more than 15 years of teaching experience that was also collected for each peer observation cycle.

Since this was a qualitative as well as quantitative study, the data collecting tools comprised observations, focus group interviews, and forms. During the focus groups, like preobservation and postobservation meetings, the peers (observer and observee) addressed questions designed to elicit the participants' perspectives on peer observation, including their ideas on the merits and limits of peer observation for both the observer and observee. In this regard, the group conversations were

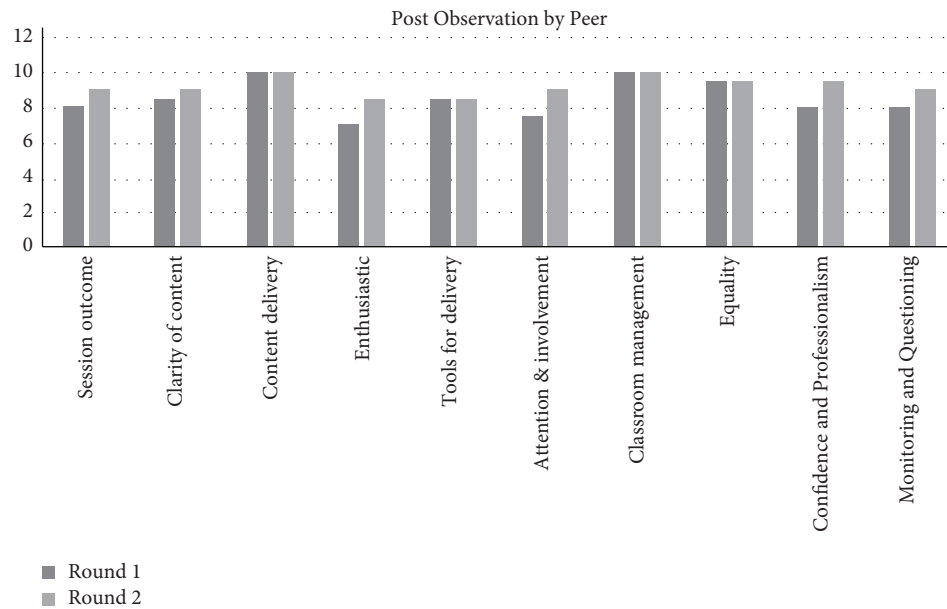


FIGURE 3: Postobservation by peers in round 1 (dark grey bars) and round 2 (light grey bars).

closely watched, and every effort was made to create clear and open-ended questions, changing them as needed to elicit explanations, descriptions, or examples. Furthermore, the peers were coworkers and therefore had a preexisting connection. They discussed opinions, shared ideas, and offered support for one another throughout the process [31]. As a result, of the mutual trust created by shared experiences among the study's stakeholders, the participants offered their perspectives honestly and freely. A systematic procedure was followed in order to collect the data. The preobservation form after having the preobservation meeting was sent to the peers that informed them about the aim and objectives of the session, strategy for teaching, and so on. After the session, in the postobservation meeting, a postobservation form was given by the observee. The postobservation form provided feedback about the session, like what was going right, what needs to be improved, and so on. For quantitative analysis, the peers submitted the forms, which had comments and grades assigned to the peers whom they observed. These grades were compared with the grades obtained in the subsequent cycles.

5. Ethical Considerations

Before beginning the data collecting procedure, the peers contacted the school heads to arrange an introductory meeting and to request that their peers are allowed to participate in the study. When this was completed, the heads were given an informed consent letter informing them of the study's goal and method. The heads were also assured that the study's findings would not be utilized for nonacademic purposes. The students of the classes where the peer observation was going to be conducted were also informed of the activity and its goal.

6. Data Analysis and Findings

RQ2: how observing the peer's session helps in improving the teaching practice?

Figure 3 depicts the marking by peer observers in cycles 1 (dark grey bars) and 2 (light grey bars). Peers graded and commented on all of the criteria listed on the post-observation form. Each criterion was graded out of ten.

RQ3: does self-teaching enhance by observing the session of the skilled teacher?

Figure 4 depicts the marking by a skilled teacher for rounds 1 (dark grey bars) and 2 (light grey bars). Skilled teachers graded and commented on all of the criteria listed on the postobservation form. Each criterion was graded out of ten.

Figure 5 depicts the marking by a mentor for round 1 (dark grey bars) and round 2 (light grey bars). Mentor graded and commented on all of the criteria listed on the postobservation form. Each criterion was graded out of ten.

Figure 6 depicts the overall feedback received in round 1 and the improvement after the incorporation of feedback in the second round. The overall feedback is calculated by taking the average from the peer observation grades, skilled teacher grades, and mentor grades.

Peer monitoring of teaching at universities is viewed as a positive and progressive technique for improving teaching quality. There is a significant improvement in round 2 for the areas where the faculty falls short. The faculty considered feedback from peers, skilled teachers, and mentors and incorporated it into his instruction. The incorporation of feedback has resulted in a significant improvement in teaching. The criteria for achieving students' attention and engagement have increased significantly by 28.8 percent, while the criteria for demonstrating enthusiasm and motivating students have increased by 15.27 percent. As a result,

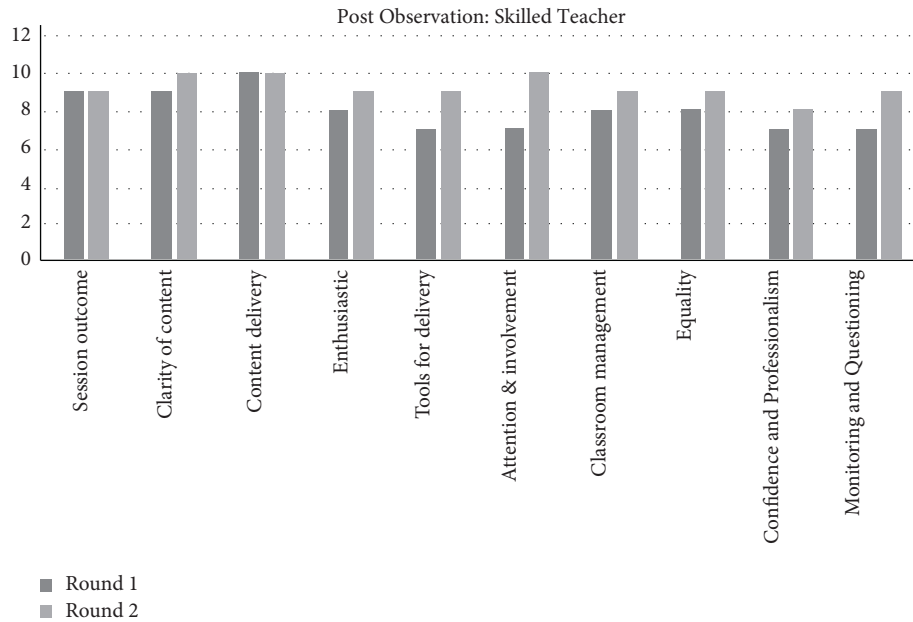


FIGURE 4: Peer observation by skilled teachers in round 1 (dark grey bars) and round 2 (light grey bars).

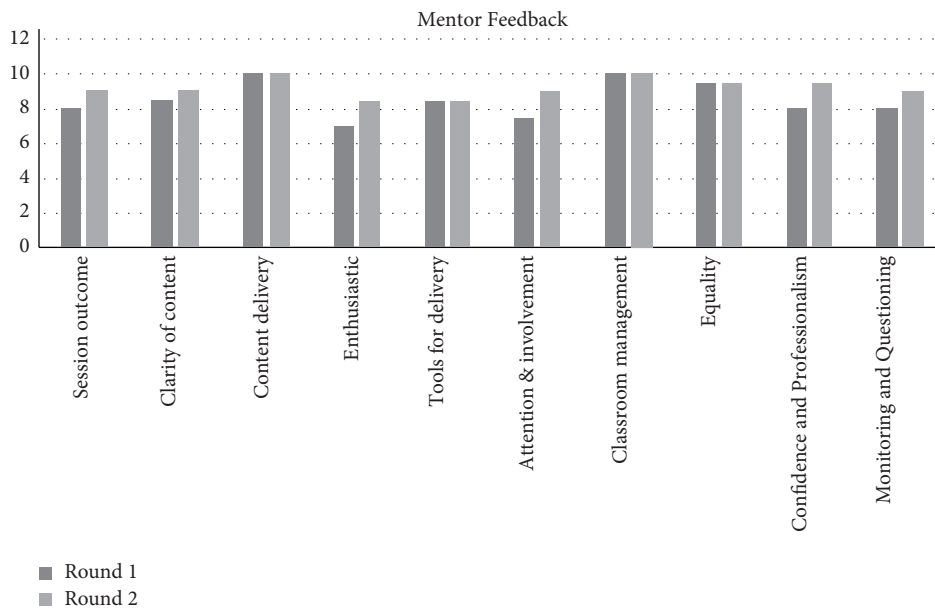


FIGURE 5: Peer observation by mentor in cycle 1 (dark grey bars) and cycle 2 (light grey bars).

it is possible to conclude that peer observation improves the overall teaching experience.

7. Discussion and Highlights

RQ4: do instructors see peer observation as a useful tool for continuing their professional development?

Peer observation becomes especially valuable when new techniques are introduced into the educational process. Adoption of new technology takes time, and many of the difficulties that teachers face can be overcome with peer support. In the context of the continuous development scheme, peer observation of teaching is described as the

formal process of identifying, disseminating, and developing good practice among professionals involved in learning and teaching activities. Peer observation can also be used to help teachers reflect. Some of the highlights of this study are discussed in the following sections.

7.1. Constructive Feedback. While it is critical that the rationale address all aspects of the rubric, positive and constructive feedback should be prioritized [32]. Significant feedback across all or many components is overwhelming to a teacher and does not indicate what is important or where they should begin. Prioritized feedback focuses on the most important ideas and

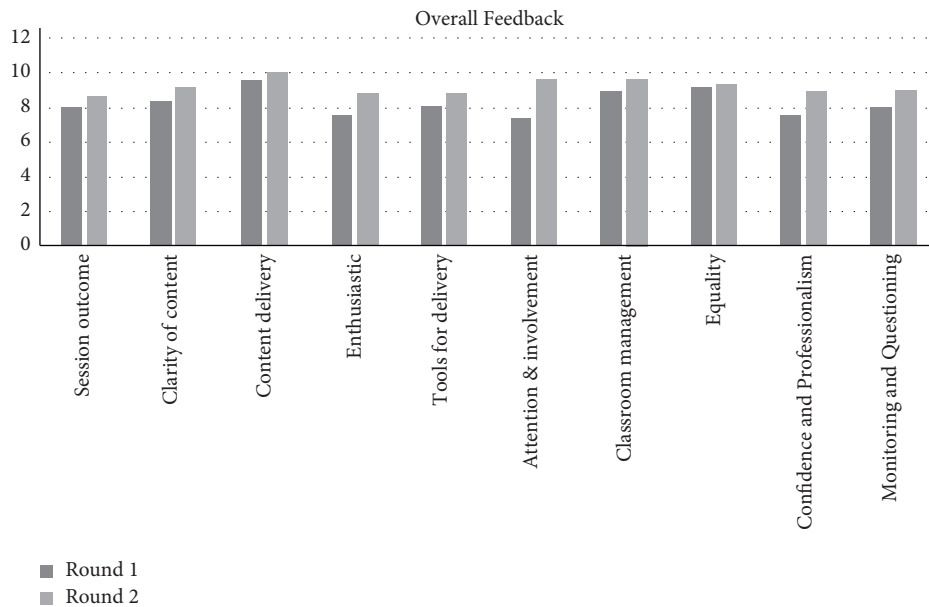


FIGURE 6: Overall feedback in round 1 (dark grey bars) and round 2 (light grey bars).

strategies for the educator to continue or adjust in order to progress in their practice. Some examples of this type of feedback include the following. To engage students, teachers used a variety of techniques (movement, story, eye contact, tone of voice, group work, discussion, etc.). To meet changing learners' needs, the professor merged instructional methods (visual, auditory, etc.) when suitable. The teacher was observant to student thoughts and feedback, providing detailed explanations and instances and/or assisting trainees in replying to one another's remarks. The professor was well-informed and up-to-date on the subject matter, demonstrating mastery of the material.

According to Whitlock and Rumpus [33], "the observation feedback that is given should be both positive and supportive to help the observed teacher reflect on their teaching. Instructors should begin and end with positive points, interspersing the positive with the critical throughout." In peer observation, one of the observers commented, "Your presentation skills are excellent and you give ample time to the students for thinking about the question that you asked in the class. Students actively participated throughout the session." He also added, "The content used is well researched and updated with the current scenario." One of the observees had quoted, "In fact, I was a little nervous before the experience. And after... well, not after, but during the first observation, I felt relaxed. At first, I assumed it would be a criticism of your profession, your job as a teacher. Then I realised that it is dealing with problems together in order to assist one another. Now I am completely confident in it."

Constructive feedback should be nonjudgmental and detailed, with plenty of evidence and concrete examples [4]. As a result, participants must be self-reflective, self-aware, and self-critical. The observation of a peer helped the observer to reflect on his own teaching style. He quoted, "I had grown accustomed to teacher-centered instruction, with

more lecturing and less integration of students, so observing these other teachers made me realise that I needed to shake things up a bit... because I'm unintentionally focusing on this style and not changing it... That was extremely beneficial to me." Observer at the same time quoted after the second cycle, "You have enhanced your teaching skills after the first cycle, and there are significant improvements in your teaching methodology. You have changed the way how questions were asked in the class."

From the above conversation among observers and observees, it can be concluded that peer observation, which includes analysis and comments, is critical for constructing a research society and rising group performance. Peer observation helps teachers by offering structured feedback against a set of established requirements, with the goal of progressing learning outcomes. Peers were grateful for the feedback received from observers. The majority of them felt benefited. Some of the peer's experiences revealed that being an observer for the sessions of their colleague proved more beneficial to them. The suggestions and the informed comments from the observers helped the peers to improve their teaching pedagogy and instructional practices and made them feel confident.

7.2. Instructional Strategies Enhancement. Peer observation enabled peers to promote the sharing of excellent practices while also raising understanding of the effect of their own teaching. Observations made were utilized by the peers in online synchronous mode teaching: innovative tools were used to make online learning as good and effective as face-to-face mode. Random cold calling and question answering on a voluntary basis were used as strategies. However, some of the peers observed that these methods could not be effective in case the strength of the class is huge. Some of the students may not participate. Getting immediate feedback on the

content delivered provided a discerning window through which faculty assessed their teaching methodologies and changed them accordingly to involve and engage students at a deeper level of understanding. It also empowered students by making them feel that their opinion matters and is valued. Polls and surveys were used effectively to actively engage all the students. Questioning was also found to be a very useful tool in order to check whether students were able to understand the subject. Continuous feedback given to the students encouraged the students to learn more and feel motivated. Teaching is tough, and that is true even if the faculty has a classroom full of 40 intelligent and bright students who listen to every word. Getting the student's attention was found to be one of the most difficult tasks for an instructor, especially in online classes. By setting a polite, professional tone, promoting online conversations, asking questions and clarifying answers, and honouring contributions, peers learned to help students overcome uncertainty while fostering positive student experiences with course material. Relations that are upbeat and enthusiastic tend to set the mood [34] as faculties face situations where students are distracted. Many strategies like cooperative learning, project-based learning, and active learning were used to grab their attention.

Content preparation equally plays an important role in delivering the lecture. It is the responsibility of the teacher to make the content arrangement in a systematic way so that learners do not find difficulty in understanding the subject. It has been discovered that high-quality teaching necessitates faculties' continual learning. They should have up-to-date skills, be able to use available tools, and be prepared to use a range of teaching methods to attract a diverse group of students. They should be outstanding communicators, eager to put students first, conscious of creating an atmosphere that encourages constructive learning and experimentation, and able to engage with all students both within and outside of the classroom [35]. An instructor should ask questions that help students develop thinking skills. The methodology of active learning was chosen by many peers to change the traditional teacher-centered classrooms into the newer student-centered approach to learning. By instilling a sense of discovery in students without losing the fundamental tenets of educational taxonomy or a rigorous knowledge of the foundation and advancement of the academic disciplines the student might be pursuing and need to master, an active learning approach has become an acceptable teaching strategy in the new learning setting.

A faculty proficient in a language is easily understood by all the students. The strategies like using humor in the class while explaining the concept were used by the instructors. These indirect mechanisms such as comedy will elicit and maintain student interest in learning. Teaching is a serious (i.e., important) profession, but it does not require faculty to be serious (i.e., humorless) [36]. Indeed, one of the characteristics of excellent (i.e., master) faculty, according to Bill Buskist and his posse of productive Auburn University protégés who, over the last 20 years, have discovered and identified the criteria of exceptional (i.e., master) faculty, is having and displaying a strong sense of humor [37].

One of the observees involved in the peer observation activity commented when asked about how his instructional strategies have improved? He answered, "I spend 1–1.30 hours preparing for each class. I collect stories and sayings that express the same idea as the lesson. I teach by using examples from everyday life and well-known incidents from the community. As a result, I introduce each topic by telling a story motivating students, and I prefer to relate the situation from the text to real-life incidents, thereby retaining students' interest out of class time I use the tried-and-true method of repetition to assist slow learners."

The observer of the session commented by adding to the observee experience, "Your teaching style is unique and the way you have used different techniques for engaging children is excellent. By observing your lecture, I clearly conclude that you have good sense of knowledge about the subject and especially the children who are slow learners would find your lecture very helpful."

Many observees when asked about instructional strategies commented, "My teaching style is very much improved by observing my peers. I quality that I have adapted by observing my peers is that while providing questions to the students... we should give some time to them for answering the question."

From the above conversations, it can be concluded that examining how the other lecturers involved in peer observation can assist other lecturers in making choices about their own lecture halls and pedagogical techniques. These instructor interactions generated fresh teaching ideas, methodologies, and techniques and created an environment in which teaching changes were possible.

7.3. Cooperation and Collaboration. People coming together to share decision-making power and responsibility has been broadly defined as collaboration [38]. Individuals cannot transform educational institutions into places where all learners learn on a daily basis; groups of teachers bring more skill, knowledge, and experience to schools than any single individual can. Professional collaboration in the institutional setting is defined by Leonard and Leonard [39] as "teachers working together regularly, sharing their knowledge, contributing ideas, and developing plans for achieving educational goals." Collaboration inside a college can occur among educators, inside a grade level and subject area, and across either services and support and can contribute to the formation of trust and collegial connections, both of which are recognized to be important for enhancing school and learner achievement [40]. Collaboration cultures, learner performance, and the content and structure of teacher relationships all have strong links [41].

One of the peer observation group members said "Some of the notable experiences that I faced includes: When I first started the peer observation process, I was a little embarrassed and nervous about having someone else watch and evaluate my teaching methods... but the support and encouragement I received... was better than I expected and was very useful."

Peer observation led to cooperative relationships among colleagues. This was most likely the result of disciplinary differences and personal experiences. Collaboration with coworkers sparked debates about educational planning and designing, encouraging educators to participate in a never-ending cycle of growth and training. When done properly, peer observations allowed teachers to grow in ways that resulted in better academic education and better levels of academics.

One of the observers said “With the help of collaboration with other peers, I have learned many things. . . like I was really impressed by one of my peers’ methods of teaching how he builds a story around the technologies by incorporating real incidents from bug tech giants, which involved using pictures of some really influencing techies and arranging them in order of time, then having the students tell their views about the technologies and their long-time impact. I took note of this technique, went to my room, devised a strategy, and taught the story like him the next day.”

“...Another method that I have learned is that, my presentation of key ideas to my students was sloppy. I lacked the ability to present ideas in a logical order, which frequently caused confusion among my students. I went to my colleague’s class about twice. I was taken aback by how methodically he would present key points and deal with each of them in a logical manner. I made a note of it in my diary and promised myself that I would apply this lesson from the next class.”

Peer Observation provided an opportunity to implement effective professional development, thereby contributing to collaboration that resulted in more effective and improved teacher instruction in classrooms.

8. Limitations

Some of the observations made that influenced the scope of the study are as follows:

- (1) The number of participants is a key drawback of this study. Only 21 people were a part of the study. Their experiences may not be representative of the overall population. The small size of the cohorts, although providing participants with numerous opportunities to express ideas, may have resulted in a smaller pool of ideas, which might be viewed as an additional constraint.
- (2) Since the participants were all faculties from different educational programs, their insights into how peer observation is regarded in the observed specific program may not be applicable (due to the differences in the interest areas). As a result, determining whether the findings are generalizable is challenging.
- (3) The participants have numerous concerns regarding the time component. They thought that, despite its importance, peer observation might sometimes feel like just another duty to perform. Participants stated that, due to everybody’s busy timelines, it may be hard to find time to discuss the lecture they are watching or whenever they watch it.
- (4) Participants were encouraged to contact the instructor ahead of time to organize the observation and to clarify requirements such as whether to identify themselves or interact with the students, etc. Several participants mentioned instances when they were dissatisfied with the behaviour of their coworkers, which ranged from showing up late to courses they had agreed to monitor to not showing up at all. Some participants, on the other hand, noted that the mentors had previously provided them with useful guidance and some etiquette as observation rules but teachers were failing to follow them. In any case, if participants are to engage in and benefit from peer observation, the observing teacher’s top priorities should be civility and care. These were the real-world barriers to learning through peer observation.
- (5) Another drawback noted by participants is that teachers may not perform to their full potential if they are aware that they are being monitored. They may perform better than their actual performance during the observation sessions. It can also be prejudiced.

9. Conclusion

Peer review of teaching allows academic staff to focus on and strengthen their teaching methods, as well as foster positive teaching relationships among colleagues. Peer observation refers to faculties watching and learning about one another’s experiences. Its aim is to encourage the exchange of best practices and raise awareness of your own teaching’s influence. Gaining knowledge about the subject taught is not the only factor that helps to be a successful teacher. It also entails a willingness to develop yourself on a holistic level, as well as upgrading the tools and materials one uses in the classroom. The easiest way to teach is to have students reflect and analyze what they have learned on a regular basis. The several hours spent in the classroom will never be enough to schedule classes, arrange content, and study students’ assignments and tests, as well as all of the institutional standards for whatever organization one works in. In this paper, the purpose and principle of peer observation are discussed, along with the steps that should be followed while participating in the peer observation cycle. The paper concludes with the results that are obtained by following the customized peer observation cycle, which show significant improvement. The criterion for attaining student attention and engagement grew by 28.8 percent, while the criteria for expressing excitement and inspiring students improved by 15.27 percent. Additional investigation on peer observation as a human development tool should involve a larger number of participants and far more focus organizations to acquire a wider diversity of viewpoints, according to the findings. A greater diversity

of professional or cultural backgrounds among the chosen participants may be beneficial and lead to a more in-depth understanding of how the practice is perceived.

Data Availability

Data sharing is not applicable to this paper.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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Research Article

Magic of Choosing Suitable Course Coordinator Based on Students' Feedback: A Single Center Experience from Saudi Arabia

Mubarak Al-Mansour ¹, Sabina Nisar Ahmed ², Muhammad Anwar Khan ²,
Pedrito Nolasco Martin,² and Syed Sameer Aga ³

¹Princess Noorah Oncology Center, National Guard Health Affairs (NGHA),
King Saud Bin Abdul Aziz University for Health Sciences (KSAU-HS),
King Abdullah International Medical Research Centre (KAIMRC), King Abdulaziz Medical City, Jeddah, Saudi Arabia

²Department Medical Education, College of Medicine, King Saud Bin Abdul Aziz University for Health Sciences (KSAU-HS),
King Abdullah International Medical Research Centre (KAIMRC), National Guard Health Affairs (NGHA),
King Abdulaziz Medical City, Jeddah, Saudi Arabia

³Department of Basic Medical Sciences & Quality Unit, College of Medicine,
King Saud Bin Abdul Aziz University for Health Sciences (KSAU-HS),
King Abdullah International Medical Research Centre (KAIMRC), National Guard Health Affairs (NGHA),
King Abdulaziz Medical City, Jeddah, Saudi Arabia

Correspondence should be addressed to Syed Sameer Aga; agas@ksau-hs.edu.sa

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Background. Medical education is an unusual field whereby a teacher does not receive formal training to become a teacher and is usually marred by quality and effectiveness in imparting the curriculum. To add to the insult, the additive burden of administering the implementation of the courses does affect the teaching capabilities of a particular teacher. At the College of Medicine (COM), a rigorous procedure for selecting suitable “course coordinators” is followed as they not only serve as administrators for the curriculum implementation but also serve as the role models for the students and their peers as well. Each course coordinator is an important cogwheel in the curriculum as each one can have a positive impact on the overall quality and success of the program. At COM, twenty-one courses are taught in the curriculum, and the execution of each course is led by the duo of coordinator and co-coordinator. The course coordinator is the one primarily involved in the execution, selection of faculty, ensuring smooth flow and delivery of objectives, finalizing and execution of the exam, and responding to students and faculty's needs during and after the course execution and is the primary person to suggest an effective action plan based on needs to improve the course for the upcoming academic year. **Aim.** The aim of our study was to assess whether a good teacher can be an effective course coordinator and what the impact of a good teacher/course coordinator is on student satisfaction levels. **Methods.** This study is a descriptive cross-sectional study carried out for five academic years from 2013-14 till 2017-18. The sample included both male and female sections of the medical program, and the courses for the study were selected as consecutive sampling techniques. The data was retrieved from the evaluation units' records for the period of 2013-18. SPSS version 20.0 was used for data analysis. **Results.** Our data reflects a strong positive correlation between course coordinator, course coordinator as a faculty, overall evaluation of the course, and mean faculty rating. Additionally, a strong positive correlation between the mean evaluation of all domains and overall course evaluation for both preclinical and clinical years of the medicine program was also found. **Conclusions.** Carefully selected effective teachers as course coordinators do have a positive impact on two domains of the course quality, that is, overall satisfaction and faculty ratings by medical students.

1. Introduction

In the medical education field, the educational environment (EE) which encompasses many domains like the design of the curriculum, the manner of its impartation, the quality of the teachers/faculty, and effectiveness of the learning atmosphere does have a strong bearing on the outcome of the program, its quality of education, and the effectiveness of students learning [1, 2]. With the advent of latest advancements in the field of medical education, medical teaching has shifted towards an inclusive culture of imparting and practicing evidence-based teaching, which has somehow created a culture of training the academicians on how to be an effective teacher [3]. A good teacher is expected to be having a blend of characteristics, some of them being active involvement and good communicator, to bridge the gap and create effective bonding with the students [4].

There is limited evidence on impact of a good teacher as a course coordinator on student's satisfaction with the course. At our medicine program, we aim to graduate qualified physicians by providing them effective EE focusing on the three main domains: quality medical education, research, and community services. The program ensures that the high-quality and effective EE is provided under the supervision of the carefully selected competent teachers and course coordinators. As each course's execution and closure are vital for provision of better EE, student's evaluation about each of them during the curriculum execution serves as an indicator of quality education, thus in turn contributing to overall satisfactory program evaluation. The leadership strongly believes that teachers' attitude, commitment, and effective leadership can have a positive impact on programs' success [5].

At our medicine program, a well-designed curriculum based on clear learning objectives is implemented via various specialized and specific courses addressing a particular organ system or specialty. The courses are executed impartially and simultaneously within two parts of the college, male and female, with the help of same faculty. However, to execute the courses effectively in the two parts, different coordinators from each side are chosen from each part. The list of course coordinators is reviewed and modified annually. It is a blend of competent male or female consultants selected based on their expertise, commitment, availability, and student's feedback. The course's coordinator conducts an introductory session where he gives students an overview of the course and answers all their queries.

Since College of Medicine, Jeddah, has an integrated curriculum involving both traditional lectures based teaching and new problem-based learning, the maintenance of the quality over the duration of the curriculum becomes a challenging part. The curriculum is currently executed in two phases, preclinical and clinical, each for a duration of two years (Table 1). Preclinical phase includes ten courses revolving around basic sciences, for example, anatomy, biochemistry, pharmacology, and physiology, while, as in the clinical years, a total of eight courses are executed, which revolve predominantly around clinical teaching.

Although it is a prescribed curriculum, the course coordinator and faculty can give their recommendations about additions/deletions to curriculum unit through curriculum modification forms. Course coordinator is the connector that brings many people together to work as a team for efficient execution of the course; he collaborates not only with the faculty and students but also with clinical and academic affairs. He oversees the smooth execution by trying to minimize rescheduling and appropriate selection of exam contents from the question bank provided by the faculty. He is expected to be well connected with the students to promptly respond to the students' needs. In short, he is the one who leads the course and has a pivotal role.

Since in EE a dynamic culture of feedback is necessary for continuous improvement in providing suitable opportunities of learning, we have also adopted a culture of continuous feedback via numerous regular surveys of stakeholders and occasional special external reviews as well. These feedbacks help us to identify the strengths of our EE reflected via performance and achievements of our students and more importantly do also enable us to identify the weaknesses of the program and the execution of curriculum in our EE. These evaluations are used for overall improvement of quality of education and in future planning, as evidence supports its beneficial role in improving not only students' educational experience but also their quality of life [1, 6]. Course evaluation feedback is compiled as end-of-course evaluation report, which is a rich source for reflection, where reflection can help the course coordinator and faculty to improve their personal competencies [7]. A need based well-structured faculty enhancement program is successfully being run in the college throughout the year. This not only aims at training the faculty to be an effective and efficient teacher [8] but also caters the academicians to lead courses as course coordinator. Thus, every possible step is taken to continue treading on the path of quality enhancement and maintenance by evaluating, acting, and then reevaluating.

Keeping in view the importance of each course as a pivotal foundation for the success of the program, this study was planned to get a detailed insight of the quality of course and its executer, that is, course coordinator based on students' feedback. We aimed to determine any association between rating of the course coordinator to his rating as a teacher, overall course evaluation, and mean faculty rating and to the rating of the course on different domains.

This study was expected to guide us in answering the important question of whether an effective teacher can also serve as an effective course coordinator and whether that could have an impact on successful running of the course as well as overall student's satisfaction with the course quality.

2. Methods

2.1. Study Settings. A descriptive cross-sectional study was conducted at COM, KSAU-HS-J, Saudi Arabia. This study was carried out over the course of five academic years between August 2013 and July 2018. The study was approved by the Institutional Ethic and Research Board (IRB) of King

TABLE 1: Curricular MAP at College of Medicine, Jeddah.

Preclinical years (phase 2)					
Year one	Foundation	Musculoskeletal	Respiratory	Cardiovascular	Hematology
Year two	Neurosciences	Endocrine, Nutrition, and Reproductive Health	Urology	Gastroenterology	Oncology
Clinical years (phase 3)					
Year one	Medicine I	Family and Community Medicine	Surgery I	Pediatrics	
Year two	Surgery II	Special Sciences and Mental Health	Obstetrics and Gynecology	Medicine II	
Medical Research I and II are spirally longitudinal run blocks, while Medical Electives is run during the summer break					

Saud bin Abdulaziz University for Health Sciences (KSAU-HS) and King Abdullah International Medical Research Center (KAIMRC).

2.2. Sample Size. Evaluation units' record data was retrieved and analyzed from the academic year 2013-14 till the academic year 2017-18. All the responses from end-of-course evaluation reports from medical students were included. The inclusion criteria for the evaluations were as follows: the questionnaire is to be filled in all aspects; and the response rate for each end-of-course evaluation is to be above 60%. The chosen courses had a blend of both male and female coordinators.

Initially 97 courses executed from August 2013 till July 2018 were chosen: 82 courses on the male side and 15 courses on the female side. After the selection with criteria, 4 courses were dropped and a total of 93 courses were included for analysis.

2.3. Questionnaire Development. A questionnaire for the end-of-course evaluation was developed after thorough discussion with the focus group comprising the college of medicine leadership, medical education experts, quality assurance reviewers, and other vital stakeholders. Thorough literature search helped in aligning our questionnaire with the internationally practiced ones. Content and face validity of the questionnaire were checked by medical education experts. The questionnaire was then subjected to a pilot test on prechosen volunteers to help in identifying any ambiguity and suggest modifications accordingly. Cronbach's alpha for reliability of the questionnaire was calculated to be 0.987. The questionnaire is available upon request.

The end-of-course evaluation questionnaire had specific questions for specific domains. In domain I, questions regarding the beginning of course in College of Medicine were asked focusing on the clarity of objectives, course outline, assessment tasks, and sources of help. Domain II comprised questions on the execution of the course like course organization, satisfaction with instructors, learning sessions/availability of resources, block's ability to stimulate one to do his best, and assessments. Domain III comprised questions to assess the learning gained from the course. Regarding the course coordinator, the questions asked were aimed at assessing his responsiveness, effectiveness of planning, knowledge, and command of course contents and his attention to curriculum revision and adjustment needs.

Data collection form for the analysis and evaluation of coordinators for different courses was developed

contextually to collect the data of two components, (a) demographics and (b) evaluation of courses by students, which included components like rating of the faculty, overall evaluation of the course, average evaluation of all domains, course coordinator as a coordinator, and course coordinator as a faculty. All questions were assessed on a five-point Likert scale from 1 to 5, where 1 was considered poor and 5 was considered excellent. When taking a mean of rating, anything between 3 and 3.5 was rated as low satisfactory, mean between 3.5 and 3.9 was considered as satisfactory, and 4 and above was considered as highly satisfactory.

2.4. Data Collection and Data Analysis. Data was retrieved from evaluation units' record and was transferred to SPSS for analysis. For descriptive analysis, mean and standard deviation were estimated. The frequency and percentage were computed for categorical variables like batch no., course name, and so forth. For inferential statistics, correlation's test was used to display the association between numerical variables. P value less than 0.05 was considered significant. Data was analyzed on SPSS version 20.0 (IBM Corp; Released 2011; IBM SPSS Statistics for Windows, Version 20.0; Armonk, NY).

3. Results

3.1. Demographic Characteristics. The data for a total of 93 courses was analyzed; out of those, 78 (83.9%) were conducted at male side, and 15 (16.1%) blocks were executed at female side. 69.9% of the blocks were from phase 2 (pre-clinical years), while only 30% were from phase 3 (clinical phase). Please refer to Table 2 for more demographic details.

3.2. Association and Difference Based on Gender. When different mean of the rating was calculated based on gender, it was found that courses run at the male and female division of the program had a strong positive correlation between course coordinator and course coordinator as a faculty with significant difference in them for both male and female ($P < 0.005$). We also found strong positive correlation between average evaluation (all domains) with overall course evaluation and course coordinator rating for gender (male and female) with significant P value < 0.001 . Please refer to Table 3 for more details.

3.3. Association and Difference Based on Level of Study, That Is, Preclinical and Clinical Phase. When mean of different rating was calculated on the basis of phases, it was

TABLE 2: Demographic characteristics of courses.

Demographic characteristics		Number of courses		%
Phase of imparting	Phase II (preclinical)	65		69.9
	Phase III (clinical)	28		30.1
Gender-wise execution	Male	78		83.9
	Female	15		16.1
	Total	93		100
	Number of courses	Mean	±	Std. dev
Overall course evaluation	93	3.48	±	.70
Average evaluation (all domains)	93	3.54	±	.61
Course coordinators rating (as a coordinator)	93	3.67	±	.89
Mean faculty rating	93	3.91	±	.35
Course coordinators' rating (as a teacher)	92	3.70	±	1.04
Response rate (%)	92	84.48	±	15.65

TABLE 3: Association and difference based on sectional execution of courses in male and female parts of the college.

Gender-wise execution		Number of courses	Mean	±	Std. dev	R	P value
Male	Course coordinators rating as coordinator	78	3.65	±	0.93	0.947	* <0.001
	Coordinators rating (as a teacher)	78	3.73	±	1.08		
Female	Course coordinators rating as coordinator	15	3.76	±	0.68	0.747	* 0.002
	Coordinators rating (as a teacher)	14	3.53	±	0.74		
Male	Course coordinators rating as coordinator	78	3.65	±	0.93	0.894	* <0.001
	Ave. evaluation (all domains)	78	3.50	±	0.64		
Female	Course coordinators rating as coordinator	15	3.76	±	0.68	0.928	* <0.001
	Ave. evaluation (all domains)	15	3.77	±	0.41		
Male	Course coordinators rating as coordinator	78	3.65	±	0.93	0.465	* <0.001
	Mean faculty rating	78	3.92	±	0.37		
Female	Course coordinators rating as coordinator	15	3.76	±	0.68	0.379	0.164
	Mean faculty rating	15	3.88	±	0.22		
Male	Ave. evaluation (all domains)	78	3.50	±	0.64	0.941	* <0.001
	Overall course evaluation	78	3.44	±	0.72		
Female	Ave. evaluation (all domains)	15	3.77	±	0.41	0.972	* <0.001
	Overall course evaluation	15	3.67	±	0.58		

Correlation test: * significant value.

found that phase II (preclinical) and phase III (clinical) had strong positive correlation between course coordinator and course coordinator as a faculty with P value <0.001 for both phases, between course coordinator and average evaluation (all domains) with P value <0.001 for both phases, and between average evaluation of all domains and overall course evaluation with P value <0.001 for both phases. Please refer to Table 4 for more details.

3.4. Difference and Association Trend as per Academic Year. When mean rating was calculated on the basis of academic years (AY) among course coordinator and the coordinator as a teacher in that course, it was found that course coordinator as a teacher compared to only course coordinator had strong positive correlation with higher mean for course coordinator as a teacher in all academic years except 2016-2017, where course coordinator (as a teacher) had higher mean value compared to course coordinator with P value <0.001; course coordinator mean was higher to average evaluation in all academic years except 2016-2017, where average evaluation (all domains) had higher mean value than course coordinator with P value <0.001. Over the years,

average evaluation of all domains mean is found to be higher compared to overall course evaluation mean except in the academic year 2013-2014 in which mean overall course evaluation was higher compared to average evaluation (all domains) (P value = 0.002) having strong positive correlation with P value <0.001. Please refer to Table 5 for more details.

4. Discussion

This study intended to determine any association between the course coordinator rating and their rating as a teacher. This association would help to identify the importance of careful selection of course coordinator as an important stakeholder and building block. We intended to determine association between the course coordinator rating and the rating on course satisfaction by the students. In this study, a strong positive correlation was found between the course coordinators' rating in a coordinator role and that in a teacher role (P value * <0.001 and * 0.002), which supports the idea of evaluation based on selection of the course coordinators. Selection of course coordinators from faculty database based on the track record and high ratings by the

TABLE 4: Association and difference based on the level of study, that is, preclinical and clinical phase.

Phase		N	Mean	±	Std. dev	R	P value
Phase II	*Course coordinators rating as coordinator	65	3.69	±	0.85	0.893	* <0.001
	Coordinators rating (as a teacher)	64	3.72	±	1.02		
Phase III	Course coordinators rating as coordinator	28	3.62	±	1.01	0.985	* <0.001
	Coordinators rating (as a teacher)	28	3.64	±	1.09		
Phase II	Course coordinators rating as coordinator	65	3.69	±	0.85	0.868	* <0.001
	Ave. evaluation (all domains)	65	3.52	±	0.57		
Phase III	Course coordinators rating as coordinator	28	3.62	±	1.01	0.938	* <0.001
	Ave. evaluation (all domains)	28	3.59	±	0.71		
Phase II	Course coordinators rating as coordinator	65	3.69	±	0.85	0.526	* <0.001
	Mean faculty rating	65	3.78	±	0.28		
Phase III	Course coordinators rating as coordinator	28	3.62	±	1.01	0.693	* <0.001
	Mean faculty rating	28	4.22	±	0.30		
Phase II	Ave. evaluation (all domains)	65	3.52	±	0.57	0.927	* <0.001
	Overall course evaluation	65	3.46	±	0.65		
Phase III	Ave. evaluation (all domains)	28	3.59	±	0.71	0.965	* <0.001
	Overall course evaluation	28	3.52	±	0.80		

Correlation test: *significant value. *BC rating: rating of course coordinator as a coordinator.

TABLE 5: Difference and association trend as per academic year.

Academic year		N	Mean	±	Std. dev	R	P value
2013-2014	*Course coordinators rating as coordinator	10	3.51	±	0.93	0.947	* <0.001
	Coordinators rating (as a teacher)	10	3.53	±	1.20		
2014-2015	Course coordinators rating as coordinator	14	3.62	±	1.26	0.986	* <0.001
	Coordinators rating (as a teacher)	14	3.64	±	1.35		
2015-2016	Course coordinators rating as coordinator	18	3.97	±	0.85	0.926	* <0.001
	Coordinators rating (as a teacher)	18	4.09	±	0.96		
2016-2017	Course coordinators rating as coordinator	23	3.56	±	0.78	0.904	* <0.001
	Coordinators rating (as a teacher)	23	3.55	±	1.00		
2017-2018	Course coordinators rating as coordinator	28	3.64	±	0.80	0.859	* <0.001
	Coordinators rating (as a teacher)	27	3.66	±	0.87		
2013-2014	Course coordinators rating as coordinator	10	3.51	±	0.93	0.653	*0.041
	Ave. evaluation (all domains)	10	3.19	±	0.52		
2014-2015	Course coordinators rating as coordinator	14	3.62	±	1.26	0.970	* <0.001
	Ave. evaluation (all domains)	14	3.35	±	0.86		
2015-2016	Course coordinators rating as coordinator	18	3.97	±	0.85	0.938	* <0.001
	Ave. evaluation (all domains)	18	3.63	±	0.65		
2016-2017	Course coordinators rating as coordinator	23	3.56	±	0.78	0.948	* <0.001
	Ave. evaluation (all domains)	23	3.65	±	0.49		
2017-2018	Course coordinators rating as coordinator	28	3.64	±	0.80	0.935	* <0.001
	Ave. evaluation (all domains)	28	3.62	±	0.54		
2013-2014	Ave. evaluation (all domains)	10	3.19	±	0.52	0.842	*0.002
	Overall course evaluation	10	3.43	±	0.54		
2014-2015	Ave. evaluation (all domains)	14	3.35	±	0.86	0.980	* <0.001
	Overall course evaluation	14	3.33	±	0.98		
2015-2016	Ave. evaluation (all domains)	18	3.63	±	0.65	0.965	* <0.001
	Overall course evaluation	18	3.60	±	0.73		
2016-2017	Ave. evaluation (all domains)	23	3.65	±	0.49	0.955	* <0.001
	Overall course evaluation	23	3.50	±	0.59		
2017-2018	Ave. evaluation (all domains)	28	3.62	±	0.54	0.973	* <0.001
	Overall course evaluation	28	3.48	±	0.67		
2013-2014	Course coordinators rating as coordinator	10	3.51	±	0.93	0.151	0.678
	Mean faculty rating	10	3.67	±	0.26		
2014-2015	Course coordinators rating as coordinator	14	3.62	±	1.26	0.465	0.094
	Mean faculty rating	14	3.77	±	0.38		
2015-2016	Course coordinators rating as coordinator	18	3.97	±	0.85	0.428	0.077
	Mean faculty rating	18	4.13	±	0.28		
2016-2017	Course coordinators rating as coordinator	23	3.56	±	0.78	0.512	*0.012
	Mean faculty rating	23	3.96	±	0.29		
2017-2018	Course coordinators rating as coordinator	28	3.64	±	0.80	0.498	*0.007
	Mean faculty rating	28	3.89	±	0.36		

Correlation test: *significant value. *Rating of course coordinator as a coordinator.

stakeholders, especially students, does serve the purpose of implementing the courses more effectively with higher quality. Among many attributes and qualities of an effective teacher, one who is good planner and organizer is regarded as the best in his abilities for the job [9].

In this study, we found that the high rated teachers were good planners in terms of planning the course as a coordinator (Tables 3–5). Usually, a subject expert was chosen as a course coordinator who is expected to play a role of navigator, collaborator, and workflow manager to respond to students' needs, while the good medical teacher should possess numerous qualities like good communication skills, calm personality, nonhumiliating behavior, honesty, knowledge, enthusiasm about job, and emotional control [3, 10, 11]. Kikukawa et al. [12], in their study among Japanese students, found that students identified provision of sufficient support and feedback as an important characteristic of clinical teacher, in concordance with our results, whereby we found that our teacher has been successfully providing adequate support as a course coordinator (Tables 3–5). Here, it is worth mentioning that all our course coordinators were clinicians who have personally gone through the drill of multiple tiers of training and thus were expected to be sensitive to the medical students' needs.

Evaluation of faculty has evolved over the last decade; some evaluate their faculty after each session and some others at the end of course; some use peer evaluation or feedback from teaching experts, while others might interview the students about the teacher's teaching ability. In our program, we evaluate the faculty at the end of course by a verified end-of-course evaluation survey, where the students rate their teachers on a 5-point Likert scale. Since teachers have the ability to inspire others and are said to be collaborators and team builders, we found a strong positive correlation between course coordinators ratings and the students' satisfaction regarding different domains of course, reflecting that the course coordinator had a positive impact holistically. As we had already reported in our previous study, the overall mean score for the students' perception about teachers (SPT) domain of the DREEM questionnaire was found to be 28.51, which was among top three domains of DREEM in our medicine program. Moreover, our students had highly scored the two important questions (teachers are knowledgeable and espouse a patient-centered approach to teaching) of the students' perception about teachers (SPT) domain of the DREEM questionnaire [1].

In this study, we also found a strong positive correlation between course coordinator rating and mean faculty rating by the male students of the college ($P < 0.001$). As the course coordinators' primary task is to lead a team for effective execution of the course, many studies on leadership have demonstrated that the possession of key leadership skills is helpful in handling a diverse team for the effective resolution of the tasks [11, 13]. In fact, team leaders are found to be vital and the most important component of a team, where they can act as moderators and integrators [14].

Teaching in medical school is a tedious process, where the teacher's role is multifaceted, complex, and demanding. The teacher must be a facilitator, role model, evaluator,

assessor, and course planner [15]. Defining good teacher in medical education is not an easy task and multiple characteristics have been identified. Low et al. [16] identified good communicators with sound subject knowledge, enthusiasm, and detailed explanation to be important for a good medical teacher; meanwhile, in clinical settings, approachability, constructive feedback, and participation encouragement mattered more to the students. Many factors have been described, which discriminate excellent clinical teaching from the ordinary one; some of them have good communication skills, ability to involve students actively, availability, and support as described by [4, 10, 11, 17]. In this study, information was gathered from end-of-course evaluation report, where the students were asked whether the course coordinator was a responsive, motivated, and effective planner and addressed curriculum revision and adjustment needs and how would they rate their knowledge of the course contents. All these questions define the expected attributes of a competent course coordinator which are few of the attributes of a competent teacher. Many students consider collaboration skills as an important characteristic of a good teacher as described by well-known studies [18]. The course coordinator acts as a collaborator and facilitator who works as a binding force and bridges different resources, and these are eminent in our study.

Teachers do have a pivotal role in improving the student's educational environment (EE), as reflected in numerous DREEM studies and related studies around the world [1, 19–21]. A supportive environment can lead to effective learning and decrease the stress that students face in undergraduate education [22]. Strong communication skills, empathy, knowledge, and enthusiasm are some of the important characteristics identified as characteristics of a good teacher in Pakistan by [3]. The course coordinator is considered as one of the pillars who is able to provide the students with a learning environment by his collaborative skills and support specifically with provision of guidance to different learning materials. We found a positive correlation between course coordinator rating and his rating as a teacher and overall course satisfaction which is consistent with literature that describe effective planning and multitasking as important attributes of a good teacher [15, 23] and can be evident in our study that good and seasoned instructors could have a positive impact on students' satisfaction.

Validity and reliability of student evaluation have been a hot controversial topic of discussion. Numerous factors have been linked to the higher students' satisfaction in the surveys [24, 25]; while some studies show availability of food during an evaluation session to have a positive impact on students' satisfaction [26], other studies have considered factors like the rank of the faculty, leniency in exams, and grade satisfaction [27, 28] to be important in affecting the satisfaction rating by the students.

On dissecting the data further into the courses run in preclinical and clinical years, we found that course coordinators rating as a coordinator positively correlated to that as a teacher, average evaluation of all domains, mean faculty rating, and overall block evaluation ($P < 0.001$; Table 4). This

is concordant with other DREEM studies [29], where the students from preclinical years rated their teachers higher. Moreover, it has been reported that females tended to rate their educational environment higher [30], which was similar to the trend in this study as well. Female students in our study rated all domains higher than their male counterparts, giving an insight into their higher satisfaction on educational environment, whereas the male students rated coordinators rating (as a teacher) and mean faculty rating higher as compared to females. This leads to an impression about difference in opinion under almost the same educational environment, which is contradictory to the findings at Jizan where loopholes and lower satisfaction in the female students made them think of assuring uniformity to improve educational experience for both male and female students [31].

On seeing annual trends, there has been an increase in satisfaction over the block coordinators rating as a teacher and coordinator with a peak in satisfaction around the academic year 2015-16 followed by a dip and then again an increase in students' satisfaction. Average evaluation of all the domains and mean faculty ratings has increased over the passage of time (Table 5). As evident through our study, evaluations and feedback could help institutes get an insight into their performance. Instant remedial measures based on feedbacks could assure maintenance of quality and can be used as a performance indicator worth tracing. This is reiterated by another study in Saudi Arabia (by [1]) where it was recommended to use feedback as a guide to improve and to train the faculty based on the needs identified through feedback.

Although course evaluations might be considered as controversial, still the literature supports their importance [32–37]. In this study, we found a positive correlation between the rating of the course coordinator and the overall evaluation of the course. This study has built up a link between selection of appropriate competent teacher as effective coordinator and mean faculty rating of the course by showing a positive correlation which can be taken as evidence to course coordinator being a driving force to get the team at task effectively.

5. Limitations of the study

Some limitations do exist in our study. First of all, the study was restricted to one medical college and was conducted over five years; hence, it cannot be generalized to other regions of Saudi Arabia or even other parts of the world.

Secondly, faculty's feedback on the course and course coordinator has not been added to this study because of limited response rate from them. Their feedback could have given us a chance to find any association between the response of faculty and students on the course and the course coordinator. It could have given us an idea whether high rating of the course coordinator could have an impact on overall course satisfaction by the fellow faculty members. There is limited evidence available to support the impact of course coordinator on running the course and execution of curriculum.

Thirdly, the relationship of a subject expert as a course coordinator or the number of sessions taken by the course coordinator and its impact on students' satisfaction along with qualitative research could have given a deeper and holistic picture on students' opinion.

6. Conclusions

Carefully selected effective teacher as course coordinator (CC) can have a positive impact on overall course satisfaction by medical students. CC acts as the driving force to lead the course and has been found to have a positive impact on faculty's performance as a teacher. It can be evident that a good teacher could be an effective planner as a course coordinator leading to a positive impact on students' satisfaction with the course and successful curricular execution.

Data Availability

Raw data is available on demand from the corresponding author.

Ethical Approval

A proper ethical approval as per Helsinki protocol was taken from Institutional Research Board prior to carrying out this study. This study was approved by the Institutional Review Board of King Abdullah International Medical Research Center (KAIMRC), a research wing of KSAU-HS, Jeddah.

Consent

A due informed consent was taken from every participant during the execution of end-of-course evaluation.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Authors' Contributions

All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript. **MM and SNA** conceptualized and designed the study and wrote the initial draft of manuscript. **MAK** statistically analyzed the collected data. **PNM** contributed to the dispensation of survey and data collection. **SSA** surveyed the literature and wrote, revised, and proofread the manuscript in the current form.

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Research Article

Graduates' Unemployment and Associated Factors in Ethiopia: Analysis of Higher Education Graduates' Perspectives

Mesfin Molla Demissie ¹, Adane Hailu Herut ², Berhanu Mekonnen Yimer ³,
Misganu Legesse Bareke ¹, Birhanu Haile Agezew ¹, Negash Haile Dedho ⁴,
and Mulugeta Fufa Lebeta ²

¹Department of Educational Planning & Management, Dilla University, Dila, Ethiopia

²Centre for Education Research, Dilla University, Dila, Ethiopia

³Department of Curriculum & Instructional Supervision, Dilla University, Dila, Ethiopia

⁴Department of Economics, Dilla University, Dila, Ethiopia

Correspondence should be addressed to Mesfin Molla Demissie; mesfinmollademissie@gmail.com

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Higher education institutions are responsible for providing their graduates with relevant job skills that will allow them to compete in the labour market. With this in mind, the purpose of this study was to identify the factors associated with graduate unemployment in Ethiopia. The data were collected, analysed, and interpreted using a quantitative design. Using Cochran's sampling formula, 359 graduates from five regions were selected as the sources of primary data. Multinomial logistic regression was used to analyse the data because it is a good model for computing the interaction between more than two independent and dependent variables. Cronbach's alpha coefficient of 0.947 indicated that the instrument's reliability is adequate. The study revealed that the independent variables that correlate with graduates' unemployment are demographic characteristics, curriculum, institutional characteristics, graduate characteristics, and economic and labour market conditions. These findings imply that HEIs and governance bodies should reconsider the sector's policy and strategic directions in terms of graduates' employability output. As one of the major improvements, the study also recommends creating an enabling environment for employers to thrive, while higher education institutions adjust their curricula to meet the needs of employers.

1. Introduction

Graduate employment is perceived as a result of broad categories of educational attainment to assess graduates' educational backgrounds. This may help establish the value of education in general or improve a graduate's performance in particular. However, studies show that various aspects of higher education and related issues have an impact on employment [1–3]. It was also asserted that most of the higher education graduates around the world face unfavourable employment prospects due to a variety of factors such as higher education institution performance, dynamic technological changes, and a crisis in the conception of work in highly developed societies [3].

For many individuals, higher education is necessary for success in the world of work in terms of economic and health benefits, civic involvement, personal development, better communication, realisation of passion, a greater sense of discipline, and a sense of accomplishment [2, 4]. This can be accomplished by standardising higher education programs and implementing periodic reforms [5]. In this changing world, where uncertainty is increasing, all higher education institutions should provide positive responses to citizens' social and economic needs. Experiences have shown that higher education institutions can provide the best services to the community if they are concerned about continuous quality, equity, and efficiency improvements [6, 7].

In most developed countries, one of the most important indicators of the performance of higher education institutions is the match between the qualifications obtained by graduates and their employment status [8]. In Europe, for example, one of the main issues associated with competence development and graduate employability identified in the review is the (mis)match between university graduates' competencies and employers' needs. Higher education institutions are concerned with developing strategies to improve graduate employability. Employment and development of graduate skills depend upon a strong sense of innovation and cooperation in higher education throughout the world [9]. In some European countries such as Spain, Germany, and Britain, there are transversal competencies that can be strongly correlated with graduate employability; the expected competencies are (1) communication, with a particular focus on foreign languages [10]; (2) teamwork, considering their relevance for professional practice in all areas of knowledge [11]; and (3) digital competences, which are gaining particular relevance in the context of the labour market [12].

Furthermore, some African countries are in the process of reforming their higher education systems to better match supply and demand in their labour markets. In Senegal, for example, young high-skilled workers experienced a nine-percentage-point employment gain relative to older workers, implying that it is how quality improvements at the university level affect employment [1]. The South African government has also succeeded in shifting the enrolment balance away from humanities subjects and toward science, engineering, and technology, as well as business and economics. Graduates, on the other hand, face disparities in employment outcomes as a result of their educational background, race, and gender [13]. According to scholars such as Calvès and Schoumaker [14], Guarcello et al. [15], Stark and Fan [16], and Getie Ayaneh et al. [17], the high rate of unemployment among young highly educated individuals is due to waiting in queues for formal sector jobs in sub-Saharan African countries including Ethiopia. If the employment rate of high-skilled workers rises in this situation, it is due to the expansion of the formal sector [13].

In the Ethiopian context, improving the quality and employability of university graduates is one of the goals of the higher education system, which has been assigned a central role in the country's efforts to eradicate poverty [18, 19]. However, studies found that the labour market is experiencing a shortage of skilled manpower, while the higher education institutions produce dozens of graduates every year [20, 21], implying that many graduates are left without a job for a long time. Regardless of the other causes of these inconveniences, it was discovered that efforts are piecemeal and geared more toward quality assurance than improvement. Researchers strongly argue that the majority of quality concerns, assessment, and review practices appeared to result in little more than formal reporting and were implemented in a haphazard manner [19, 22]. For a developing country, being unemployed for an extended time after graduation has negative consequences in terms of higher education outcomes, implying that higher education is a "wasted investment" [23, 24].

Thus, development cannot be ensured solely by producing a large number of graduates; it must also be ensured by paving the way to employment [25], implying that graduate employment can be the backbone of the labour market of developing economies in the twenty-first century. It is also important to understand that the more the university graduates find job opportunities in their fields of study, the higher the performance of their universities increases. This creates a good match between the supply (a growing number of university graduates) and the demand (job opportunities) of the labour market. To this end, inconvenience behind graduates' employment outcomes and mitigation mechanisms must also be reconsidered for reformative actions. With this argument in mind, this study aims at investigating the factors that cause graduate unemployment from the perspective of graduates of the Ethiopian higher education institutions.

2. Empirical Literature Review

2.1. Graduates' Unemployment. Graduates' unemployment is perceived as a falling return on a country's investment in higher education [26]. To be more specific, according to Chan and Tweedie [27], unemployment causes individuals to suffer from financial hardship that impacts families, relationships, and communities. When they happen, consumer spending, which is one of the economy's key drivers of growth, goes down, leading to a recession or even a depression when left unaddressed [28]. Such problems reduce demand, consumption, and purchasing power, resulting in lower profits for businesses and the need for budget cuts and workforce reductions. It creates a cycle that goes on and on that is difficult to reverse without some type of intervention [29]. Persons who face unemployment most often find themselves in long-term earnings losses and complicated psychosocial matters onward [30].

Graduate unemployment is still a global problem. According to the International Labour Organization's annual report, the rate of young graduates entering the labour force is still declining. Similarly, the share of young people who are employed is decreasing. The unemployment rates have remained stable, but they are nonetheless higher than adult unemployment rates between 1999 and 2019 [26, 31]. Countries are meant to share this global burden of unemployment, regardless of their economic circumstances. On the other hand, the share for developing countries may be worse because it exacerbates inequities and causes resentment, which can lead to violence and related behavioural disorders [32]. In Haiti, for example, those female youth need special attention because they are more likely than their male peers to be unemployed or inactive, implying that there are gender inequalities [32]. According to Banks [33], high rates of youth unemployment in Tanzania provide major barriers to young people's capacity to become self-sufficient, which is a critical initial step in the transition to adulthood. It was also noted that one of the effects of graduates' unemployment in Ethiopia is the low self-esteem of individuals [21].

Given the rapid expansion of higher education institutions in Ethiopia, enhancing graduates' employability has become a top priority. However, the unemployment rate for 2020 is even 2.79%, a 0.75% increase from 2019, while the number of graduates is increasing year after year [34]. This is because of significant disparities between/within public universities and a growing number of smaller for-profit private providers, many of which are said to be of questionable quality [35]. As a result, creating jobs for the growing number of graduates is a major challenge for the country, which is becoming a major concern in the labour market [36].

2.2. Factors behind Graduates' Unemployment. University graduates used to invest their time and money to get employed as per their study field. If they remain unsuccessful in their job search for a while, they are meant to be unemployed for several factors. Empirical research findings confirmed the following factors influence the unemployment rate among higher education graduates.

2.2.1. Demographic Characteristics. According to a Mazzotta research, graduates from low-income families have a harder time finding work than graduates from high-income families, and this is especially true in the south of Italy. In the north, male graduates with talent are preferred over female graduates [37]. Meanwhile, in Israel, gender inequalities in employment continue to exist, with women rejecting positions more readily than men due to job content, working conditions, conflicts between work and family commitments, and masculine-typed work. Men spend more time per week looking for work than women [38]. Furthermore, Israelis have first-hand experience with age-related aspects of graduate unemployment, with middle-aged unemployed people reporting spending more time hunting for work than younger people [38, 39].

2.2.2. Graduates' Characteristics. Graduate qualities are intended to be influencing variables in Bangladesh graduate unemployment. Academic achievement, technical skills, communication skills, personality, leadership and motivating abilities, and teamwork and problem-solving skills are regarded as independent variables that influence the unemployment rates, according to Hosain et al. [40]. After a thorough statistical analysis, the findings revealed that all independent factors, except for technical abilities and leadership and motivational skills, have a substantial impact on the country's unemployment rate. Another Malaysian study found that people with good employability skills do better than those who lack these skills [41–43].

2.2.3. Institutional Characteristics. The lack of collaborative networks between higher education institutions and hiring employers is one of the causes contributing to the growth in graduate unemployment in Nigeria. According to Olukayode's study, there was no meaningful partnership between universities and labor companies in delivering the necessary

skills for university graduates' employability and job satisfaction [44]. Another concern is that embracing employability as one of the goals of higher education is not being given the attention it deserves. In Portugal, the level of concern varies according to the discipline and kind of institution. Regardless of their differing perspectives on employability, all academics engage in instructional approaches that promote employability development, albeit with different goals [45]. On the contrary, this suggests that an institutional culture that does not prioritise employability as one of higher education's goals contributes to the rising graduate unemployment rate.

2.2.4. Academic Achievement. Individuals are expected to be adequately prepared with the essential skill set and ready to enter the workforce after completing the university system and getting their degree [46]. The Malaysian experience backs up the notion that higher academic accomplishment leads to greater employability among students, and vice versa, for graduates with low academic achievement [47]. Ismail [42], Yu [43], and Graham and Mlatsheni [41] all support the idea that academic achievement influences graduate unemployment rates, implying that poor command of the English language and a lack of leadership and technical skills have had a significant impact on graduates' unemployment thus far.

2.2.5. Higher Education Curriculum. It was suggested that the higher education curriculum has an impact on the employability outcomes of graduates. According to a study from Lebanese, many universities are assessing students' learning outcomes in relation to academic and career goals, structured materials, and skill development. It also reveals that high-quality higher education, especially with a focus on soft skills and internships, improves graduates' chances of landing their first job following graduation [48]. In some cases, duplication of courses in institutions with less demand may produce graduates with similar courses that are not needed at all regarding higher education curriculum [32, 49]. Furthermore, because their curriculum must be sensitive to labour market needs, Portuguese institutions acknowledged graduate employability as one of their economic goals [45].

2.2.6. Methods of Teaching and Learning. Higher education teaching methods are considered one of the elements that influence graduates' employability outcomes. According to the findings of a study conducted in Malaysia, some university lecturers attempted to integrate work-related generic skills into their teaching methods [50]. Beyond work-integrated learning, blending traditional small-group teaching activities with work-integrated learning can help bridge the gap between graduates' abilities and labor market demands in the UK [51]. This was confirmed by a recent study that poor teaching-learning environments, a lack of industry-skilled staff, and an over-reliance on theoretical content education are considered some of the reasons that affect graduate unemployment in Nigeria [52].

2.2.7. Economic and Labour Market Conditions. The rapid expansion of university enrolment, according to Nigerian experience, increases the supply of educated and qualified graduates, which is more than the need for skilled labour in an economy. The ability of a country's economy to absorb a large number of graduates has an enabling surface for the increase of employability performance within the higher education institutions [53]. According to the Russian interregional comparative study, the rate of unemployment is influenced by the structure of employment, the level of economic development of the region, and the demographic structure of a given country [54]. The same may be said about Zambian graduates, as the economic crisis was a key contributory element in youth unemployment in Harare [55]. As a result, if graduates lose their jobs, they are more exposed to poor economic situations because they have already spent their resources pursuing higher education [56].

2.2.8. Global and Emerging Issues. Alike, unemployment is a global problem; graduate unemployment is also influenced by global issues. To begin with the very recent issue, COVID-19 is one global burden that influences the rate of graduate unemployment. According to a recent study, the COVID-19 cases cause unemployment in Germany, Italy, and the UK. It was also evident that the pandemic increases the unemployment rate robustly in the mostly European economies [57]. As one of the global factors, climate change, and epidemic diseases are considered as one of the influencing factors of unemployment [58, 59]. Moreover, emerging technologies such as automation systems also influence unemployment as they convert activities from a manual system to a machine system [60]. Furthermore, in 15 out of the 21 countries, one cannot reject that the same natural rate, as a function of the global factor, appears in both the unemployment and inflation equations. In explaining unemployment, the global factor is highly significant, suggesting that models which ignore the global dimension are likely to be deficient [61].

3. Methodology

This study used a purely quantitative approach and is based on primary data collected from graduates who received bachelor's degrees from various universities across the country within the last 20 years. The use of a quantitative approach is important because it allows researchers to test hypotheses, examine cause, affect relationships, and make predictions [62]. The respondents were chosen based on multiple characteristics such as age, gender, family background, rural/urban dichotomy, the university they graduated from, year of graduation, their field of study, and employment status of the graduates from five regions of the country: Addis Abeba, Amhara, Oromia, Sidama, and SNNP regional states. Therefore, it can be fair to conclude that the representativeness of the study and the sample size, as shown in Table 1, is sufficient.

TABLE 1: Demographic characteristics of the respondents.

Characteristics		N	%
Employment status	Fully employed	113	31.48
	Underemployed	57	15.88
	Unemployed	189	52.65
Year of graduation	2001–2005	6	1.67
	2006–2010	17	4.74
	2011–2015	43	11.98
	2016–2020	293	81.62
Residence	Rural	241	67.13
	Urban	118	32.87
Region	Addis Ababa	58	16.16
	Amhara	81	22.56
	Oromia	124	34.54
	Sidama	69	19.22
	SNNPR	27	7.52
Age	21–25	157	43.73
	26–30	110	30.64
	31–35	53	14.76
	36–40	19	5.29
	>40	20	5.57
Family education	Uneducated	123	34.26
	Primary education	17	4.74
	Secondary education	94	26.18
	Higher education	125	34.82
Family occupation	Government employee	106	29.53
	Business owner	78	21.73
	Farmer	133	37.05
	Others	42	11.70
Gender	Male	262	72.98
	Female	97	27.02

Since the study intended to use the data from a large number of respondents who graduated within the past 20 years, we do not have much information on the exact number of graduates. Using Cochran's formula, the researchers made assumptions that half of the graduates are employed, and the other half are not, which implies $p = 0.5$. Now let's say we want 95% confidence and at least +5% precision. A 95% confidence level gives us a Z value of 1.96 per the normal table. The Cochran [63] formula is as follows:

$$n_0 = \frac{Z^2 pq}{e^2}, \quad (1)$$

where n_0 is the sample size, z is the selected critical value of the desired confidence level, p is the estimated proportion of an attribute that is present in the population, $pq = -1$, and e is the desired level of precision.

This can be calculated as follows:

$$p = 0.5 \text{ and hence,}$$

$$q = 1 - 0.5 = 0.5$$

$$e = 0.05; z = 1.96$$

$$\text{Then, } n_0 = ((3.84)(0.5)(0.5)/(0.05)^2) = 384$$

Even though the survey questionnaire was distributed to 384 graduates, 26 of them refused, and 359 questionnaires were collected. Before the distribution of a five-scale Likert-based survey questionnaire to the sample size, a pilot test was

made for 30 respondents from Sidama regional state to check the quality of the items. Based on the pilot test, Cronbach's alpha coefficient indicated that the reliability is sufficient, which is 0.947. Having confirmed this, the questionnaire was distributed to 384 respondents, 26 of them refused to fill, and 359 questionnaires were collected appropriately.

Regarding the method of data analysis, we used multinomial logistic regression to predict a nominal dependent variable (employment status) given one or more independent variables such as age, gender, residence, academic performance, teaching, learning, institutional characteristics, graduate characteristics, economic and labour market, and global and emerging issues. Indicators were assigned for all of these independent variables. Using the 27th version of SPSS software, the analysis result of multinomial logistic regression was properly computed and reported at a confidence level of $\alpha = 0.05$.

4. Results and Discussions

4.1. Results. This section uses both descriptive and inferential statistics to analyse data collected through the questionnaire. This section analyses the data with regard to whether the graduates' unemployment. Table 2 shows the model fitting information of the multinomial regression method.

4.1.1. Model Fitting Information. According to Table 2, the model fitness was assessed using the chi-square statistic. The chi-square value was 124.623, and the p -value was less than 0.05. This indicates that there is a significant relationship between the dependent variable and the independent variables in the final model.

4.1.2. Goodness-of-Fit. Table 3 presents the goodness-of-fit to ascertain the model that is appropriate for further analyses.

In Table 3, it is shown that the Pearson (729.922) and deviance (578.091) statistics inform us that the model is fit. Since the test is not statistically significant, that is, the p -value is greater than 0.05.

4.1.3. Pseudo R-Square. According to Table 4, the pseudo R-square measures for the model are Cox and Snell's (0.308), Nagelkerke's (0.358), and McFadden's (0.186). The model accounts for 18.6% to 35.8% of the variance and represents relatively decent-sized effects.

4.1.4. Likelihood Ratio Tests. The likelihood ratio tests are presented in Table 5.

The likelihood ratio test in Table 5 indicates that the independent predictor variables such as characteristics of the curriculum, graduates' characteristics, economic and labour market conditions, global and emerging issues, age, and gender were significant, which shows that these predictors contribute significantly to the final model.

TABLE 2: Model fitting information.

	Model fitting criteria	Likelihood ratio tests		
	-2 Log likelihood	Chi-square	d_f	Sig.
Intercept only	710.334			
Final	585.711	124.623	20	0.000

TABLE 3: Goodness-of-fit.

Goodness-of-fit			
	Chi-square	d_f	Sig.
Pearson	729.922	696	0.181
Deviance	578.091	696	1.000

TABLE 4: Pseudo R-square of the model.

Pseudo R-square	
Cox and Snell	0.308
Nagelkerke	0.358
McFadden	0.186

4.1.5. Correlates of Unemployment. Table 5 shows the correlations between the measures of unemployment and a variety of graduates' traits, characteristics of the curriculum, teaching and learning, institutional conditions, graduates' characteristics, economic and labour, market conditions, and global and emerging issues.

According to Table 6, the relationships between unemployment and graduate demographic characteristics ($\beta = -0.404$; $p = 0.014$, $p < 0.05$) and ($\beta = -0.922$; $p = 0.000$, $p < 0.05$) revealed that older graduates have a lower rate of unemployment, while more recent graduates have to wait longer to find a job. This suggests that graduates need to get better information to reduce the search time. Besides, our result showed that higher levels of underemployment were male graduates ($\beta = 1.093$; $p = 0.006$, $p < 0.05$). On the other hand, The results of the multinomial regression analysis ($\beta = -0.263$; $p = 0.171$, $p > 0.05$) and ($\beta = -0.182$; $p = 0.209$, $p > 0.05$) in the table, on the other hand, showed that respondents' cumulative grade point average (CGPA) was not associated with whether respondents were jobless or underemployed.

The measures of unemployment were related to the nature of the curriculum ($\beta = -0.058$; $p = 0.005$; $p < 0.05$), characteristics of the institutions ($\beta = -0.022$; $p = 0.048$, $p < 0.05$), graduates' characteristics ($\beta = 0.055$; $p = 0.004$, $p < 0.05$), and economic and labour market condition ($\beta = -0.062$; $p = 0.010$, $p < 0.05$). Finally, on the other hand, the levels of unemployment were not related to the teaching-learning process ($\beta = 0.015$; $p = 0.577$, $p > 0.05$) and global and emerging issues ($\beta = -0.032$; $p = 0.121$, $p > 0.05$).

4.2. Discussions. The aim of this study was to investigate factors linked to graduate unemployment in Ethiopia from the perspective of graduates. According to the study's empirical literature evaluation, there are independent variables that are associated with graduates' unemployment. They are

TABLE 5: Likelihood ratio tests.

Effect	Model fitting criteria		Likelihood ratio tests		
	-2 Log likelihood of reduced model		Chi-square	d_f	Sig.
Intercept	585.711 ^a		0.000	0	—
Age	643.199		57.489	2	0.000
Gender	593.149		7.438	2	0.024
Commutative grade point of average	588.427		2.717	2	0.257
Characteristics of the curriculum	593.543		7.833	2	0.020
Teaching and learning processes	586.743		1.033	2	0.597
Institutional characteristics	588.897		3.186	2	0.203
Graduates' characteristics	592.940		7.229	2	0.027
Economic and labour market	597.486		11.776	2	0.003
Global and emerging issues	592.058		6.347	2	0.042

TABLE 6: Correlates of unemployment.

Graduates employment status	Variables	β	Std. error	Wald	d_f	Sig.	Exp (β)	95% confidence interval for Exp (β)	
								Lower bound	Upper bound
Underemployed	Intercept	3.375	1.597	4.470	1	0.034			
	Cumulative grade point of average	-0.263	0.192	1.874	1	0.171	0.769	0.527	1.120
	Gender	1.093	0.401	7.438	1	0.006	2.983	1.360	6.543
	Age	-0.404	0.164	6.074	1	0.014	0.668	0.484	0.921
	Characteristics of the curriculum	-0.049	0.027	3.294	1	0.070	0.952	0.903	1.004
	Teaching and learning	-0.009	0.038	0.062	1	0.804	0.991	0.920	1.067
	Institutional characteristics	0.005	0.015	0.108	1	0.742	1.005	0.976	1.035
	Graduate characteristics	-0.004	0.023	0.028	1	0.868	0.996	0.953	1.041
	Economic and labour market	0.027	0.027	0.953	1	0.329	1.027	0.973	1.084
	Global and emerging issues	-0.059	0.024	5.884	1	0.015	0.943	0.899	0.989
Unemployed	Intercept	6.433	1.314	23.960	1	0.000			
	Cumulative grade point of average	-0.182	0.145	1.576	1	0.209	0.834	0.627	1.108
	Gender	0.604	0.341	3.129	1	0.077	1.829	0.937	3.570
	Age	-0.929	0.137	45.913	1	0.000	0.395	0.302	0.517
	Characteristics of the curriculum	-0.058	0.021	7.898	1	0.005	0.944	0.906	0.983
	Teaching and learning	0.015	0.028	0.311	1	0.577	1.016	0.962	1.072
	Institutional characteristics	-0.022	0.011	3.905	1	0.048	0.979	0.958	1.000
	Graduate characteristics	0.055	0.019	8.382	1	0.004	1.057	1.018	1.097
	Economic and labour market	-0.062	0.024	6.712	1	0.010	0.940	0.897	0.985
	Global and emerging issues	-0.032	0.021	2.399	1	0.121	0.969	0.930	1.009

^aReference category: fully employed.

age and gender, demographics, academic achievement, characteristics of the curriculum, teaching-learning methods, institutional culture, graduate characteristics, economic and labour market conditions, and global and emerging challenges. Using a multinomial logistic regression analysis, the following findings were apparent as associated factors for graduates' unemployment.

In general, the likelihood ratio test demonstrates that both "unemployment" and "underemployment" status in Ethiopia are influenced by demographic characteristics (age and gender), curriculum characteristics, and economic and labor market conditions, all of which contribute to the final model. This means that the aforementioned independent variables have a strong positive correlation with graduates' joblessness. The influence of age as a demographic characteristic is consistent with the finding of [37] that there is an age difference in terms of employment, meaning that young

graduates are more likely to compete in the labor market. The findings of Yenew's study support the relationship between graduates' demographic characteristics (age and gender) and their employment status [64]. Second, additional research, such as those in Lebanon and Portugal, has verified the considerable link between these variables and unemployment [45, 48], graduate characteristics in Bangladesh and Malaysia [41–43], and economic and labour market conditions in South Africa and Zambia [53, 55].

In particular, it is reasonable to assume that graduate unemployment is strongly influenced by age, graduate characteristics, curriculum characteristics, institutional characteristics, and economic and labour market conditions in the country. For example, age is highly linked to graduate unemployment, suggesting that the older a person becomes, the more likely they are to become unemployed. In a similar pattern with the likelihood ratio test, the characteristics of

higher education curriculum, institutional characteristics, and economic and labour market conditions and graduate characteristics are also strongly associated with graduates' unemployment. These occurrences are also confirmed by other studies such as [32, 40, 45, 49, 54, 56]. This implies that working more on the aforementioned influencing factors in higher education institutions has paramount importance. For instance, the development of curriculum content and its major components, as well as their assessment, includes determining the list of training courses/modules, the mastery of which will help form in students the competencies required for successful adaptation to the labour market [65]. As a result, the study suggests that the curriculum designers need to be reconsidered the relevance of curriculum materials. It was also learnt that graduates' knowledge and attitude on what to do and be to get employed are very important aspects of graduates' characteristics.

5. Conclusions

The primary source of data for this study was graduate perspectives. The researchers were able to solve issues related to graduates' unemployment and associated factors in the Ethiopian economic context by looking into multiple independent variables. However, more research is needed to cover topics that go beyond the perspectives of graduates, such as employers' opinions, labour market situations, and policy-level difficulties.

The evidence that higher education improves job prospects and earnings potential is overwhelming, and it is influenced by a variety of factors. Identifying the causes of disparities in graduate employment outcomes is critical for higher education institutions' quality, equity, and efficiency. According to the findings of this study, demographic characteristics, curriculum characteristics, institutional culture, graduate characteristics, economic and labour market conditions, and global and emerging issues can all significantly predict the fate of graduates' employment outcomes in Ethiopia. It can be fair to draw a lesson that except for their demographic characteristics, almost all independent variables predict the graduates' employment outcomes. This suggests that the majority of the variables point to the graduating universities' institutional quality and that higher education institutions and governance bodies design flexible and marketable curriculum so that graduates may engage in the dynamic labor market. Higher education institutions must strengthen their inclusive development plans to address the age and gender disparities, as this contributes to the attainment of sustainable development goals. The study also urges governance bodies to create an enabling environment for employers to thrive, while higher education institutions adjust their curricula to meet the needs of employers.

Data Availability

A set of field data are available from the principal investigator of this project, and it will be shared whenever requested.

Conflicts of Interest

There are no conflicts of interest.

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