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The Moderating Role of Training in The Relationship Between Leadership Implementation of Quality Management and Lecturers' Performance

A Case Study in Egypt Higher Education Institutions

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ABSTRACT

To implement quality management under uncertainty, higher education institutions should explore factors influencing lecturers' performance This study assess the moderating role of training in the relation of leaders' implementations of quality management to lecturers' performance among lecturers in Egyptian higher education institutions. The data for this aim was obtained through self-administered questionnaires from the public university of Egypt and applied PLS software to analyze the data. The questionnaire data were obtained from 310 lecturers who confirm hypotheses that training strengthens the positive relationship between leaders' implementations of quality management on lecturers' performance. The findings showed that leaders' implementation of quality management and training had significant predictions on lecturer's performance. Furthermore, the interaction item between leaders' implementation of quality management and training could significantly affect lecturers' performance. This indicated that the association between implementation of quality management and lecturers' performance could be moderated by training. In the light of the research results, this study provides a special perspective for educators, practitioners, and researchers to recognize the role of training in promoting lecturers' higher levels of performance in higher education contexts.

Keywords
Higher Education
Leaders
Performance
Quality Management

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Introduction

The higher educational institutions witnessed intense competition in terms of educational quality and outcomes. Accordingly, higher education institutions needed to change their traditional methods and replace them with modern administrative procedures in order to achieve their goals effectively [1]. Ref. [2] highlighted the important role of lectures in the success of the educational institution, with the skills and competencies they possess that affect their students and their levels of achievement.

According to Ref. [3], developing countries, such as Egypt, are experiencing weak lecturers' performance in the higher education sector. Also, Ref. [4] pointed out that academic staff in Egypt universities face many pressures and challenges that affect their academic performance, due to the increased need for lecturers in various disciplines, which led to the joining of lecturers who do not have sufficient skills and their inability to interact with students. Furthermore, Ref. [5] revealed that some factors prevent lecturers in university to improve and develop their academic performance such as the prevailing belief that a faculty member does not need training programs for professional development, the absence of clear policies to guide lecturers towards developing their professional reading, an increase in the study load, which leads to a lack of time allocated for scientific and professional development, absence of implementing quality management, and the absence of training programs and courses to improve the skill and efficiency of lecturers in universities.

Consequently, the Ministry of Education in Egypt has made a lot of efforts to improve lectures' level of performance. Furthermore, the vision of the ministry of education 2030 was created to improve the quality of education and teacher professional development that will be reflected in the educational outcomes. However, despite the efforts made by the Ministry of Education in Egypt, the reality indicates some shortcomings in achieving quality and improving lecturers' performance. Also, Ref. [6] declared that implementing quality management need to be taken into account by higher education institutions and their workers to enable to improve lecturers' performance.

The commitment of university leaders towards comprehensive quality management in education and improving the university performance of lecturers shall be by focusing on their

participation in decision-making, continuous training and contribution to developing plans, working to achieve a high level of students' achievement [7,8]. In this sense, according to Ref. [9], leaders' quality management implementation is essential for assisting educational employees in achieving higher levels of their performance. However, even with a myriad of investigations on lecturer's performance, limited studies have examined the effect of quality management implementation in lectures' performance.

Another factor that might enrich lecturers' performance in higher education institutions is training. Training provides employees with knowledge, skills, and capabilities in specific areas to improve their performance at work [10]. Therefore, training is the basic rule in the educational process as it offers an opportunity for lecturers to perform their tasks in practice and apply the information and knowledge, they have acquired to raise the level of performance [11].

According to performance theory, employees who experience a high level of training are expected to work harder to improve their work performance. In other words, employees are motivated when they feel that their organizations implement training sessions to improve their knowledge and skills and, in turn, they reciprocate with high-quality output [12]. The theory implies that trainees may need the information to be presented in multiple ways. It may be that a specific approach may prove more effective for certain types of knowledge and performance and certain kinds of situations. For example, it may be that leadership provide the features and benefits of a new program and courses to be learned by lecturers through implementing quality management in university. Consequently, providing appropriate training leader able to organize people and resources more effectively and to get higher quality results in order to improve the performance. Simultaneously, lecturers will be capable in a short time of achieving to deliver deeper levels of learning and improved levels of their skills development.

Futhermore, Ref. [13] indicated that the knowledge and skills obtained during training that applied in the workplace thus results in improved lecturers' performance. Also, Ref. [14] indicated that the provision of quality-related training for all employees signifies the institutional ability to nurture and recognize the development of the skills, knowledge, and capabilities base. Ref. [15] reported that training and education are used to disseminate knowledge of continuous improvement and innovation in the service process to achieve full advantages and institutional excellence. Therefore, the relationship between leadership implementation of quality management and lecturers' performance can possibly be clarified best when leadership providing of training that trainees receive at work when using their newly acquired knowledge and skills [16].

Although the strong theoretical bases on the crucial role of training, there is a scarcity on studies on how training affects lecturers' performance in higher education institutions or

academic settings in general. Moreover, to the best knowledge of the researcher, no empirical studies have examined the moderating role of training in the relationship between leaders' implementation of quality management and lecturers' performance in the higher education sector in an Arab country such as Egypt. Thus, the current study aims to fill the mentioned gaps in order to shed new light on the role of training and quality management implementation in enhancing lecturers' performance as well as investigating the moderating role of training.

Literature Review

A. Quality Management Implementation and Lecturers' Performance

Employees' performance is considered a multifaceted phenomenon as well as an essential benchmark for evaluating whether a business succeeds or fails [17]. As demonstrated by Ref. [18], higher educational institutions assumed the responsibility of preparing lecturers and developing their skills to improve their educational and academic outcomes. To achieve education success, several universities implement quality management as one of the essential techniques to produce high-quality performance among lecturers [19]. Thus, reaching the best levels of performance for higher education institutions are reflected in their lecturers' performance which in turn leads to students' highest levels of academic achievement [20].

In addition, Ref. [21] stressed that the interest in training and developing the lecturers to keep pace with the comprehensive quality standards make them able to face the imposed challenges by activating their role as a mentor and guide for their students to produce the desired educational outcomes to be able to fulfil the labour market requirements. Furthermore, Ref. [22] conducted a study in education context which aimed to identify the factors affecting educational quality and explain their importance and mutual effects on the quality and responsibility of the institution. The findings of his study demonstrated that leadership practices are the most important factors to improve educational quality. Ref. [23] investigated the association between leadership practices and performance among academic staff in Indonesia; in which their results revealed a significant and positive relationship between leadership practices and lecturers' performance.

In the refresh study by Ref. [24] highlighted that school principal has a significant impact in supporting employees' performance. In the same vein, in his study to examine the perceptions of elementary school principals regarding instructional leadership practices supporting character education, Ref. [25] indicated that schools' management must be at the forefront of the promotion of character education through the promotion of implementation of instructional leadership practices.

Ref. [26] examined the effectiveness of development programs directed to teachers and found a significant impact of development programs as a standard of quality to improve

teachers' performance. Additionally, Ref. [27] carried out a study to investigate the influence of total quality management on teachers' professional development and her findings showed that quality management has a significant and positive influence on teachers' professional development. Therefore, much higher education institutions have adopted the concept of quality management implementation in education with the aim of continuous development in performance in line with administrative and educational developments in order to keep pace with developments which aimed to make the excellence achieved in all operations carried out by the higher education institutions. A considerable amount of literature has been published on quality management in Egypt [28-30] and these studies indicated that there are consequences for quality management implementation in university, including the absence of strategic quality plans and the lack of lectures' participation in decision-making and training. These studies have recommended more investigations regarding the adoption of quality management in public universities, particularly in Egyptian higher education institutions. Therefore, despite recent evidence, empirical studies are scarce about the relationship between the implementation of quality management and the performance of lecturers in the contexts of higher education in Egypt, which needs more scrutiny.

B. Training and Performance

Training receives increasing attention in most public and private organizations, whether large or small organizations and all of them are interested in training as this factor is considered as one of the essential factors in service sectors to benefit workers in any educational organization [31]. According to Ref. [32], education and training are two basic processes that complement each other, as education precedes training, as well as these two factors, work in parallel for the most important positive outcomes in academia. Ref. [33] indicated that training is one of the most substantial methods used in developing the abilities and competencies of employees of the organizations. Also, Ref. [34] demonstrated that through training, organizations could influence the behaviour and attitudes of individuals and change their scientific and practical capabilities and bring them to a high degree of diversity in skills. Ref. [35] asserted that training is one of the key and underpinning factors to develop and improve the performance and efficiency of employees through the development of their skills.

In addition, Ref. [36] claimed that the effectiveness of education lecturers' training enhances their performance which in turn enhance students' achievement. Therefore, training is able to contribute to the improvement of teaching and learning processes for both lecturers and their students. However, there is an absence of evidence of the impact of training on lecturers' performance. Thus, this study aimed to establish the moderation influence of training in the relation between quality management implementation and lecturers' performance in the Egyptian higher education institutions.

Methods

A. Research Design

This study utilized a quantitative research design applying a survey approach to examine the moderating role of training in the association between quality management implementation and lecturers' performance within higher education institutions in Egypt. A quantitative method allows investigators to collect the data from a large sample size as well as use the statistical analysis to determine the extent to which a certain phenomenon is accurate and reliable [37]. Hence, as employed in the current study, through a quantitative research design, the researchers can investigate the relationships among the substantial variables.

B. Population and Sampling

Lecturers from public universities in Egypt were recruited to participate in the current research. Determination of sample data is carried out based on the acceptability of the sample using a PLS-SEM model that relates to the recommendation that the number of samples refers to the number of indicator variables studied [38]. The total sample of 310 lecturers was randomly selected from 15 faculties in the public universities in Egypt. Table 2 shows the demographics of the respondents in the study. For more description, the sample includes 174 females (56.1%) and 136 males (43.9%). Furthermore, in terms of rank, most of the respondents were lecturers (82) which represent 26.5%. regarding the work experience as academic staff, the majority of respondents (96) have a work experience ranging between 6 to 10 years (31%), followed by those who have five years and below (30.6%).

Table 1. Demographic Profile of the Participants (N=310)

Demografic Variable	Category	Frequency	Percentage %
Gender	Male	136	43.9
	Female	174	56.1
Tenure	5 years and below	95	30,6
	6-10 years	96	31.0
	11-20 years	85	27.4
	21 and above	34	11.0
Rank	Teaching assistant	63	20.3
	Assistant Lecture	56	18.1
	Lecturer	82	26.5
	Associate Professor	55	17.7
	Professor	54	17.4

C. Research Instruments

The instrument used in the current study consists of an independent variable (leaders' implementation of quality management), a dependent variable (lecturers' performance), and a moderator (training). The questionnaire of the study involved four sections, in which the first section involves demographic items for the description of the respondents' profile. The second

section consists of 18 items adapted from [39] based on Deming's 14 points to measure leaders' implementation of quality management. Furthermore, 20 items of the questionnaire was used to measure lecturers' performance (11 items) and training (9 items). A five-point Likert scale was used for all variables ranging from 1 "Strongly disagree" to 5 "Strongly agree". Internal consistency using Cronbach's alpha coefficient was employed to evaluate the reliability of the items (see Table 2).

D. Data Collection

The researcher used the online survey (mail questionnaires) method to collect the data from respondents in an Egyptian higher education institution due to time consideration as well as the travelling restriction due to the pandemic of Covid-19. Furthermore, the online questionnaire can be sent to many people, and respondents are more truthful during their responses to the questionnaires particularly in terms of controversial issues as their responses are anonymous. The instructions were explained to the respondents and requested to complete the questionnaires; this system ensured a high response rate from the respondents before proceeding for data analyses.

E. Data Analysis

The data collected were analyzed using the SPSS software version 26 for data screening as well as the descriptive statistics. Besides, in order to test the measurement model and the proposed hypothesises, we utilized the Partial Least Squares (PLS) analysis technique throughout the software of the Smart PLS version 3.0 [40]. In the current study, as recommended by Ref. [40], we evaluated the measurement model in terms of the reliability and validity of our substantial constructs before the assessment of our structural model in order to test the hypothesized relationships. Moreover, as stated by Ref. [41], a bootstrapping technique (500 resamples) has been applied to evaluate the level of significance for path coefficients, weights, and factor loadings.

Results

A. Measurement model

To evaluate the goodness of our measurement model, we followed the recommendations of Ref. [42] in which he suggested that there two main categories of validity that should be computed for the assessment of the measurement model; namely: (1) convergent validity and (2) discriminant validity. Ref. [41] defined convergent validity as the degree of agreement among a set of items in which they converge to measure a specific construct. The convergent validity in the current study was measured by computing factor loadings, composite reliability (CR), and average variance extracted (AVE). The acceptable threshold values of factor loadings, AVE, and composite reliability (CR) are 0.5, 0.5, and 0.7, respectively [42]. As demonstrated in

Table 1, the findings of our measurement model revealed that the obtained values have exceeded the acceptable threshold values. As illustrated in Table 2, items are valid except for LEQM17 from leaders' implementation of quality management. Also, T1 and T9 were eliminated because the standardized path loadings did not meet the criterion. Furthermore, from the table, the values of the composite reliability were 0.950, 0.877, and 0.942 for quality management implementation, training, and lecturers' performance, respectively. All values of composite reliability have exceeded the cut-off value for a reliable construct (0.7). The average variance extracted of the three substantial factors ranged from the lowest value of 0.505 to the highest value of 0.630 and exceeded the recommended value of 0.5. Therefore, the measures in the current study have established acceptable goodness of measures in terms of convergent validity and construct reliability (see Table 3).

Table 2. Internal consistency reliability and convergent validity results

Construct	Items	Loading	AVE	Composite Reliability	Cronbach Alpha
Leaders' implementation of Quality Management	LIQM1	0.695	**0.514**	**0.950**	**0.943**
	LIQM2	0.650			
	LIQM3	0.768			
	LIQM4	0.710			
	LIQM5	0.679			
	LIQM6	0.827			
	LIQM7	0.698			
	LIQM8	0.725			
	LIQM9	0.745			
	LIQM10	0.695			
	LIQM11	0.804			
	LIQM12	0.675			
	LIQM13	0.710			
	LIQM14	0.619			
	LIQM15	0.592			
	LIQM16	0.789			
	LIQM18	0.820			
	LIQM19	0.757			
Training	T2	0.698	**0.505**	**0.877**	**0.836**
	T3	0.737			
	T4	0.729			
	T5	0.722			
	T6	0.773			
	T7	0.652			
	T8	0.654			
Lecturers' performance	LP1	0.769	**0.630**	**0.942**	**0.941**
	LP2	0.759			
	LP3	0.747			
	LP4	0.799			
	LP5	0.803			
	LP6	0.804			
	LP7	0.819			
	LP8	0.782			
	LP9	0.807			
	LP10	0.823			
	LP11	0.814			

Table 3. Construct Reliability and Validity

Construct	Cronbach's Alpha	Composite Reliability	Average variance extracted (AVE)
Leadership Implementation of Quality Management (LIQM)	0.943	0.950	0.514
Training (T)	0.836	0.949	0.630
Lecturers' Performance (LP)	0.941	0.877	0.505

Subsequently, the discriminant validity of the measures was examined following the recommendation of Ref. [43]. Discriminant validity refers to the degree to which items differentiate among constructs or measure distinct concepts [41]. Ref. [43] recommended that the square root of AVE of each construct should be larger than inter-construct correlations, as seen in the off-diagonal elements in Table 4. Furthermore, the results of the measurement model showed that the values in the diagonals have exceeded the values in their respective rows and columns which confirms that the three constructs measured in the current research are distinct and our measurement model established an excellent discriminant validity. Overall, the results of the measurement model revealed that both convergent and discriminant validity of the measures are well established.

Table 4. Measurement model: discriminant validity

	LIQM	T	LP
LIQM	**.717**		
LP	.627	**.793**	
T	.637	.663	**.711**

B. Structural Model

After the successful validation of the measurement model, the structural model was analyzed and the proposed hypotheses are tested by bootstrapping technique as stated by Ref. [41]. The structural model used to investigate the hypothesized relationship in our proposed model regarding the direct and the moderating effect. It involves the path coefficients and bootstrapping with a number of 5000 bootstrap samples and 309 cases were also assessed to investigate the significance of the path coefficients. Based on the Table 2 and Table 3, Fig. 1 shows the measurement model of this study.

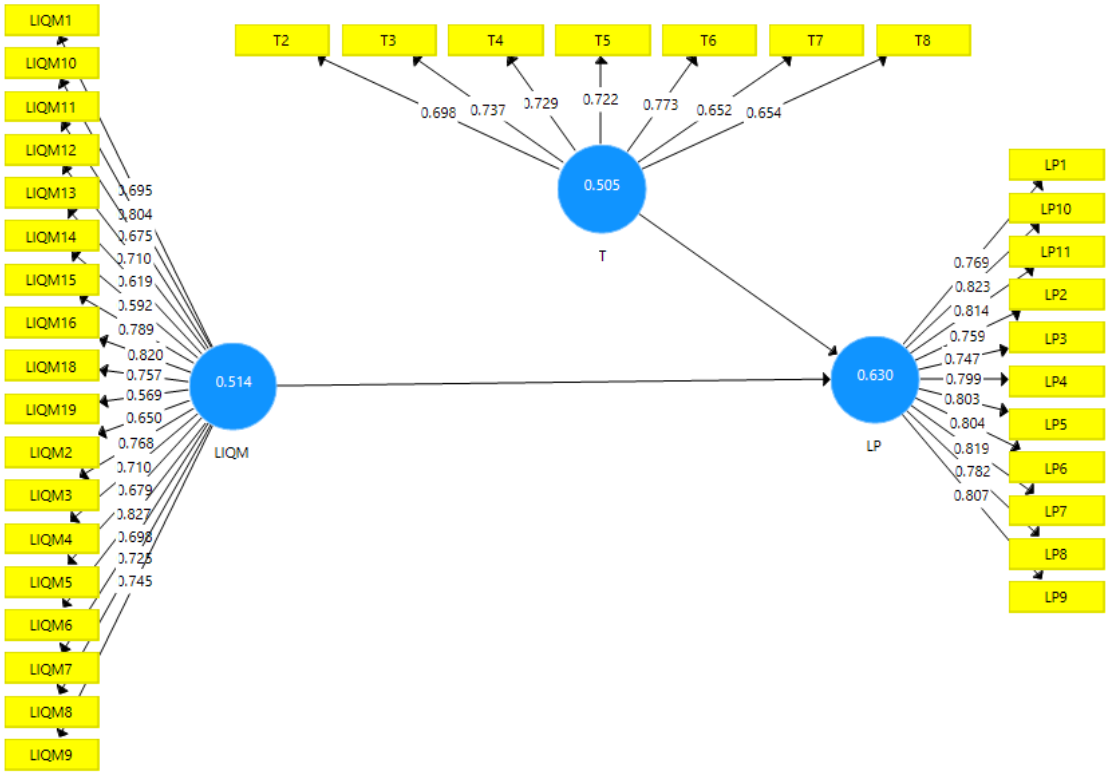

Fig. 1. Measurement Model

Table 5 demonstrates the results of the structural model in terms of β-values, t-values which was generated from bootstrapping technique, p-values to test the significance of the path coefficient of the hypothesized relationships. Also, the result in Table 4 shows the R^2 and F^2 as part of the structural model evaluation. Furthermore, in the current study, we employed the blindfolding procedure as suggested by Ref. [41] to compute the predictive relevance of the model.

Table 5. Structural Model Analysis (Hypotheses Testing Results)

Hypothesis	Relationship	Std Beta	Std Error	t-Value	p-Value	F^2	R^2	Q^2
H1	LIQM→LP	0.647	0.066	10.00	P < 0.05	0.92	0.71	0.44
H2	Moderating Effect	0.087	0.043	2.020	P < 0.05			

The result of the structural model was depicted in Table 4 above. Based on this result, the first hypothesis (H1) stating that quality management implementation positively influences lecturers' performance has been supported at 0.05 level of significance (β = 0.647, t = 10.00, p < 0.05). In parallel, the second hypothesis (H2) stating the training has a significant influence on lecturers' performance was also supported at 0.05 level of significance (β = 0.280, t = 4.404,

p = 0.04) which indicates a positive and significant association between training and lecturers' performance. Besides, hypothesis (H3) related to moderating effect of training in the relationship between quality management implementation and lecturers' performance has also been found significant (β = 0.087, t = 2.020, p < 0.05). Hence, all three hypotheses have been supported.

In addition, the current study used Ref. [44] guideline to measure the effect size. Looking at the f^2 values in Table 5, it can be observed that all the relationships showed substantive impact whereby the direct relationships from quality management implementation and training towards lecturers' performance signified a large effect size. Furthermore, the value of R2 was 71% which is considered moderate as suggested by Ref. [41] on explaining the amount of variance in lecturers' performance. Besides assessing the R2, we also used predictive relevance Q2 [41] as an additional tool for the assessment of model fit. If Q2 > 0, it shows that the model has predictive relevance [45]. In the current study, the value of Q2 is 0.44 (see Table 5), implying that the model has predictive relevance for a certain endogenous construct. Moreover, Fig. 2 shows that the interaction plot in which line tagged high training, which indicates the presence of training, has a steeper gradient as against low training (absence of training). This finding showed the positive significant moderating effect of training in the relationship between quality management implementation and lecturers' performance.

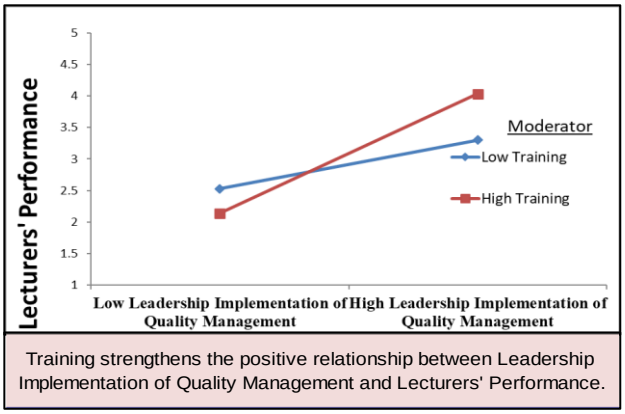

Fig. 2. Post Hoc Graph.

Discussion

The overall findings of the current study imply that leaders' implementation of quality management is an essential factor in enhancing effective lecturers' performance. However, in some contexts, some leaders' implementation of quality management could be detrimental to enhanced performance. In this sense, previous studies [46] argued that leaders could improve the performance of their lecturers through communication, building up their confidence, driving out their fair and providing them valuable resources. Additionally, the findings of the

present study signify that leaders' implementation of quality management is a powerful and positive process for the development of employees' performance. The current findings are consistent with the previous literature regarding the positive influence of quality management implementation on the performance of lecturers and employees in general [6,19,47,48]. Regarding the importance of training for the lecturers' performance, several previous studies asserted the critical role of training in predicting positive and desired educational outcomes, including lecturers' performance [10, 27, 49-51]. Moreover, the construct of training has been found as a significant moderator in the relationship between leaders' implementation of quality management and employees' performance. This finding exposes the importance of training as an interacting construct to reinforce the influence of leaders' implementation of quality management on lecturers' performance. The findings imply that the positive relationship between leaders' implementation of quality management and their lecturers' performance became stronger by the inclusion of training in the proposed model.

According to Ref. [41], this finding entails that the association between leaders' implementation of quality management and lecturers' performance would be stronger and strengthened by establishing effective training sessions for the lecturers. Accordingly, lecturers' performance could be more enhanced and supported in the higher education institutions in which training and leaders' implementation of quality management are involved in their agenda in parallel. Hence, in a university with high training and leaders' implementation of quality management becomes more important for predicting a high level of lecturers' performance while in a university with less training and leaders' implementation of quality management would decrease the levels of the lecturers' performance.

In terms of theoretical perspective, this study sheds new light on the role of training as a contextual variable in the relationship between quality management and lecturers' performance in higher educational contexts. Practically, the current findings could be taken into consideration as meaningful guidelines for managers, practitioners and stakeholders in the Egyptian higher education institutions to employ a new approach in developing plans to improve educational quality, particularly lecturers' performance. In other words, for the success of the educational process, by employing quality management implementation to enhance lecturers' performance it is imperative for higher education institutions in Egypt, and worldwide, to incorporate training sessions for lecturers in their plans and agendas.

There are some limitations in the current study that should be highlighted for future research. First, the data of the current study was collected based on a cross-sectional approach in which the claim of causality between the variables is diminished. As a result, future studies

using longitudinal research design are needed. Second, the data were obtained via self-report surveys, which could have biases. Future investigations are supposed to use other methodological instruments such as interviews sessions and observations for triangulation. Third, the current sample included only Egyptian lecturers which to some extent shrinks the generalization of the results. Thus, future research must recruit a sample from different cultural backgrounds and a more heterogeneous sample of lecturers and even a sample of managers.

Conclusion

The findings of the current study confirm that the positive effect of leaders' implementation of quality management on lecturers' performance cannot be strengthened if the top management of the university does not provide training sessions for their academic staff. Additionally, the current study has established how crucial the lecturers' performance is to the future of any higher education institution, and that lecturers are instrumental to the achievement of institutions' ultimate aims. The findings of this study have offered more insights into leaders' implementation of the quality management investigation field and how this process, in addition to training, would vitalize lecturers' performance. Therefore, educators, stakeholders, policymakers, and all practitioners in higher education institutions are recommended to pay more attention to the implementation of quality management as well as training sessions for their lecturers to enhance their performance and eventually high-quality educational outcomes in general.

Conflict of Interest

The authors declare that there is no conflict of interest.

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