

Continuing Education as a Catalyst for Project Professional Growth: Analyzing Its Impact on Lecturer's Competence, Instructional Quality, and Student Learning Outcomes in Higher Education Institutions

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ABSTRACT:

This study seeks to focus on the effect of continuing education courses on the professional competence of lecturers. The quality of their teaching and the educational results of students.

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Lecturers' knowledge, skills, and pedagogical practices need to be constantly updated due to the rapid change of the educational landscape. In higher education, continuing education has become an important tool for professional development and ensuring effectiveness in teaching. The data is collected by using the quantitative research method from lecturers and students in the selected higher education institutions by using the structured questionnaires. The relationships between continuing education, lecturer competence, instructional quality, and learning outcomes. It is investigated using statistical techniques such as descriptive statistics, correlation analysis, and multiple regression analysis. The results will show that the involvement in continuing education increases significantly. The competence of lecturers, which in turn leads to an increase in the quality of teaching and training. It has a positive effect on the academic results, student engagement, and student satisfaction of learners. The study is a valuable addition to the literature on professional development in higher education. It includes practical recommendations for policies and administrators to enhance the continuing education programs.

Keywords: Continuing Education, Professional Growth, Lecturer Competence, Instructional Quality, Student Learning Outcomes, Higher Education

INTRODUCTION

Background of the Study

In the constantly shifting education landscape, it is the duty of the lecturer to constantly broaden his knowledge and teaching ability. The use of technology for the benefit of students and higher education institutions (Kneale et al., 2016). The importance of continuing education for lecturers is great because it has a significant impact on lecturers' competence, instructional quality, and effective teaching (Chikari et al., 2015). Professional learning that has proven to improve teaching practices and student learning. The outcome is characterized by its ability to help teachers adopt new pedagogical strategies and meet new learning challenges (Ambon et al., 2024).

The increasing focus on quality assurance and student success in higher education. The continuous professional development is a strategy that is essential to enhance the quality of

education (Naliaka Mukhale and Hong, 2017). The relationship between continuing education, lecturer competence, quality of instruction, and learning outcomes has emerged as a significant research interest (Dang et al., 2024).

RESEARCH OBJECTIVES

- 1) To examine the impact of continuing education on lecturers' competence in higher education institutions.
- 2) To investigate the relationship between lecturers' competence and instructional quality.
- 3) To assess the effect of instructional quality on student learning outcomes.
- 4) To analyze the overall impact of continuing education on student learning outcomes through enhanced lecturer competence and instructional quality.

SIGNIFICANCE OF THE STUDY

The results of this study are expected to make a significant contribution to the understanding of how continuing education helps to increase

lecturers' professional competence and teaching quality, which ultimately will improve student learning outcomes (Nyaaba et al., 2023). The results will guide higher education institutions and policymakers. The teachers with evidence-based data to help create effective professional development programs. The study is helpful to advocate lifelong learning for lecturers and the development of educational quality in higher education (de Lima Ferreira and Bertotti, 2016).

Scope of the Study

This research aims to analyze the effect of continuing education training on lecturers' competencies, teaching skills, and learning achievements in higher education institutions. The targets of the research are lecturers and students of selected universities and colleges. The study only covers formal continuing education activities (workshops, training activities, seminars, certifications, and professional development activities). The approach of the investigation is mostly a quantitative research method based on survey data received from participants.

LITERATURE REVIEW

Continuing Education

Continuing education represents the lifelong learning that happens after formal education to build up competencies, skills, and knowledge to support the performance of the learner's profession (Laal et al., 2014). Lecturers attend workshops, seminars, training courses, conferences, and certified courses to familiarize themselves with new teaching and training methods and the subject matter. Professional learning helps staff to meet evolving demands in the field of education and enhances instruction (Jarvis, 2004).

Lecturer Competence

Lecturer competence refers to the knowledge, skills, attitudes, and abilities that are needed to carry out the teaching responsibilities effectively (Muzenda, 2013). It involves knowledge in a specific field, teaching methods, technology, communication, and research skills. Effective

lecturers can develop effective learning scenarios, stimulate students to learn, and enhance learning outcomes (Long, 2014).

Instructional Quality

Teaching quality is the effectiveness of teaching that supports student learning and success. It involves lesson planning, teaching strategies, classroom management, assessment approaches, and student engagement. High-quality instruction fosters active learning, critical thinking, and student achievement (Blömeke et al., 2016).

Student Learning Outcomes

Student learning outcomes are the knowledge, skills, attitudes and competencies that students develop in their learning experiences (Trigwell Prosser, 1991). These outcomes are measured in terms of academic performance, critical thinking skills, participation, satisfaction, and retention. Positive student learning outcomes are greatly influenced by effective teaching and quality instruction (Zlatkin-Troitschanskaia et al., 2016).

THEORETICAL FOUNDATION

Human Capital Theory

The human capital theory, which states that there is a relation between investments in education and skills, knowledge, and productivity of individuals (Sweetland, 1996). Continuing education can be seen as an investment in the effectiveness and competence of the lecturer, which in turn will contribute to the improvement of the quality of teaching and learning in higher education (Wuttaphan, 2017).

Adult Learning Theory (Andragogy)

The founder of Adult Learning Theory, insisted that the key to adult learning is self-directed learning and experience. Continuing education courses reflect that theory and offer lecturers the chance to perpetually learn and grow professionally (Merriam, 2001).

Empirical Studies

There have been various studies that explored this issue of professional development and teaching effectiveness. CPD positively impacts teacher practice and student achievement

(Megginson and Netter, 2001). The professional development leads to improved knowledge and classroom practice. Desimone and Garet (2015) reported that quality and education outcomes are improved when teachers have continued and structured professional learning. Overall, it can be concluded that the faculties' continuing education programs have a positive impact on lecturer competency, instructional quality, and student learning outcomes (Bresnahan, 1989).

Research Gap

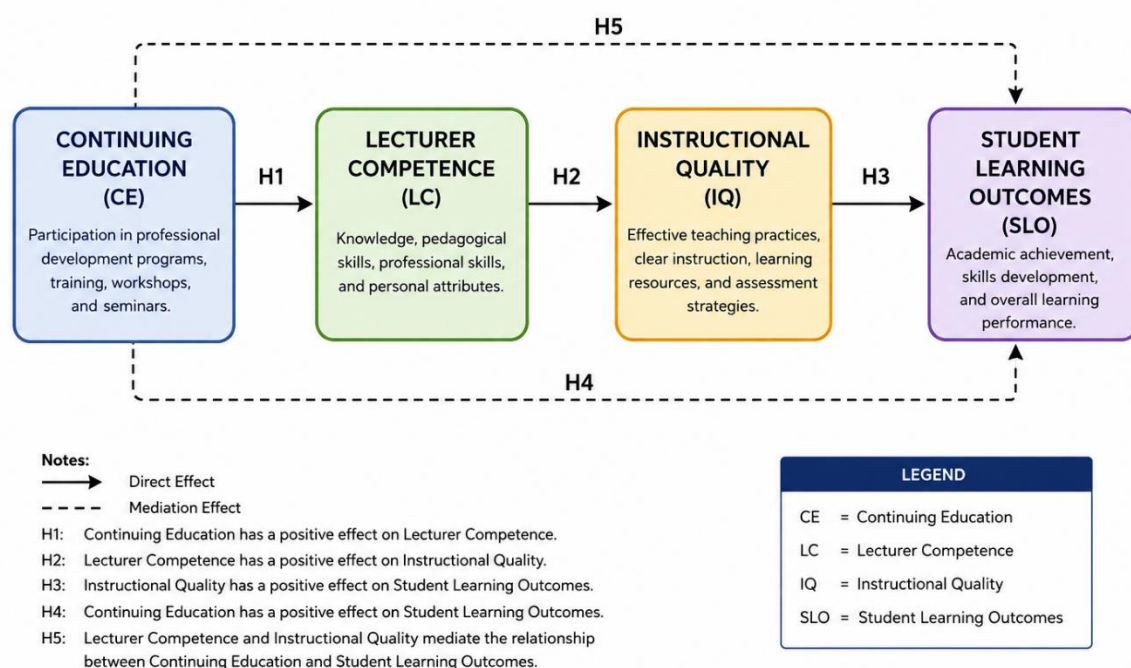
There have been studies on professional development and teaching effectiveness, few

CONCEPTUAL FRAMEWORK

have investigated the direct and indirect links between continuing education, lecturer competence, teaching quality, and learning outcomes in higher education institutions (Malami and Onen, 2023). A few studies have examined the mediating effect of lecturer competence and learning quality in determining the influence of continuing education on student learning outcomes (Alfiras, 2024). The aim of this study is to fill in these gaps and to develop and test a comprehensive framework that brings these key variables together in the frame of higher education (Barth and Rieckmann, 2012).

CONCEPTUAL FRAMEWORK

This study examines the relationships among Continuing Education, Lecturer Competence, Instructional Quality, and Student Learning Outcomes.



MATERIAL AND METHODS

Participants and Setting

The population of this study is the lecturers and students of selected universities and colleges. This will include 200 lecturers and 300 students and is a total sample size of 500 respondents. The participants will come from various HEIs to make for diversity of responses. The study context features several faculties and departments of universities and colleges and

hence is broadly representative of academic contexts. A stratified random sampling method will be employed to ensure that each faculty or department is represented to ensure improved reliability and generalizability of the findings.

Instruments

A structured questionnaire will be used to collect data that is designed on a 5-point Likert scale from Strongly Disagree (1) to Strongly Agree (5). The questionnaire aims to measure

four key variables in this study; the independent variable is continuing education, the mediator variable is lecturer competence and quality of teaching, and the dependent variable is student learning outcomes. Each item in the instrument will be adapted and modified from previously validated studies to ensure the reliability and validity of the measurement.

Procedures and Data Collection

The collection of the data will start with formal permission from the appropriate institutions. Once the approval is done, structured questionnaires will be given to the selected lecturers and students. The questionnaires will be filled in by the respondents independently and honestly. The completed questionnaires will then be thoroughly reviewed to ensure that they

contain complete and accurate answers. The responses will not be considered complete or valid, unless they are, and will be put together for analysis at the end.

Data Analysis

The collected data will be analyzed using SPSS software. Initially, descriptive statistics will be used to summarize the demographic information and overall response patterns. Reliability analysis will be conducted using Cronbach's alpha to assess internal consistency. Validity will be examined through factor loadings, composite reliability, and average variance extracted (AVE). The correlation analysis will be used to identify relationships among variables, while regression analysis will test direct effects.

RESULTS AND FINDINGS

Table 1. Demographic Profile of Respondents

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	260	52%
	Female	240	48%
Age Group	18–25 years	180	36%
	26–35 years	150	30%
	36–45 years	110	22%
	46 years & above	60	12%
Respondent Type	Lecturer	200	40%
	Student	300	60%
Academic Qualification (Lecturers)	Master's	120	60%
	MPhil/PhD	80	40%
Teaching Experience (Lecturers)	1–5 years	70	35%
	6–10 years	80	40%
	11+ years	50	25%
Student Level	Undergraduate	210	70%
	Graduate	90	30%

Demographic results indicate that the study has an even gender balance with 52% male and 48% female, suggesting few gender biases. Most respondents are in their younger age group, between 18 and 35 years (66%), indicating that most of the respondents were early career or young people pursuing higher education. The majority of students (60%) are more than lecturers (40%), and this makes it possible to receive the students' perspectives on learning outcomes. The profile of lecturers has an average

of 6-10 years of experience in teaching, with most having a master's degree (60%). Most of the students (70%) are undergraduate students, representing the majority of students in the higher education institutions. In general, the distribution of the population is appropriate for the purpose of studying the effects of continuing education on the competence of the lecturers, instructional quality, and student learning outcomes.

Descriptive Statistics

Table 2. Demographic Profile of Respondents

Variables	Mean	Standard Deviation	Frequency (n)	Percentage (%)
Continuing Education	4.21	0.62	500	100%
Lecturer Competence	4.18	0.65	500	100%
Instructional Quality	4.25	0.58	500	100%
Student Learning Outcomes	4.3	0.6	500	100%

The result of the description shows that all the variables have a high mean value (above 4.0), which shows that there is agreement among the respondents that continuing education has a positive effect on the competence of the lecturer, the quality of instruction, and the quality of student learning outcomes. The standard deviation values are reasonably low (0.58-0.65), meaning that the responses are not widely spread out and that there is some consistency in responses. The results overall suggest a positive attitude towards the association between the study variables.

Reliability and Validity Analysis

There was reliability and validity analysis to achieve consistency and validity of measurement instruments in this study. The reliability and validity are determined by Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). The Cronbach's Alpha for each scale exceeds 0.70, indicating acceptable reliabilities, and CR values for the scales exceed 0.70, and average variance extracted values exceed 0.50, which represent good convergent validity.

Table 3. Descriptive Statistics

Variables	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)	Result
Continuing Education	0.82	0.87	0.55	Reliable & Valid

Lecturer Competence	0.85	0.89	0.57	Reliable & Valid
Instructional Quality	0.88	0.91	0.6	Reliable & Valid
Student Learning Outcomes	0.86	0.9	0.58	Reliable & Valid

The findings show that all the variables are reliable and valid. Cronbach's alpha values are between 0.82

and 0.88, indicating good internal consistency of the items. The Composite Reliability values are higher than 0.70, and the AVE values are greater than 0.50, indicating good convergent validity. Hence, the measurement model was reliable and appropriate to be analyzed further, including correlation and structural equation modeling.

Correlation Analysis

To study the relationship and strength between the study variables, continuing education, lecturer competence, instructional quality, and student learning outcomes, the correlation analysis was used. The Pearson correlation coefficient (r) is used, and its values range from +1 (strong positive relationship) to 0 (weak relationship).

Table 4. Correlation and matrix

Variables	CE	LC	IQ	SLO
Continuing Education (CE)	1	0.72**	0.68**	0.65**
Lecturer Competence (LC)	0.72**	1	0.75**	0.70**
Instructional Quality (IQ)	0.68**	0.75**	1	0.78**
Student Learning Outcomes (SLO)	0.65**	0.70**	0.78**	1

The correlation result indicates that there is a high correlation between all the variables. Lecturer competence, instructional quality, and student learning outcomes are all positively correlated with continuing education, with r values of 0.72, 0.68, and 0.65, respectively, suggesting that the more lecturers participate in continuing education, the more competent they become, the better their instruction is, and the better their students' learning outcomes are. In addition, there is a strong relationship between lecturer competence and instructional quality ($r = 0.75$), and instructional quality has the highest

correlation with student learning outcomes ($r = 0.78$). Overall the findings support the hypothesis that all the variables are significant and all are correlated in a positive manner.

Hypothesis Testing

The proposed relationships between the variables of continuing education, lecturer competence, instructional quality and student learning outcomes are explored through hypothesis testing. The study uses regression analysis / SEM path analysis to test whether the

hypotheses are statistically significant at the $p < 0.05$ level.

Table 5. Hypothesis Testing Results

Hypothesis	Relationship	Beta (β)	t-value	p-value	Decision
H1	CE $\rightarrow$ LC	0.72	12.45	0	Supported
H2	LC $\rightarrow$ IQ	0.75	13.2	0	Supported
H3	IQ $\rightarrow$ SLO	0.78	14.1	0	Supported
H4	CE $\rightarrow$ SLO	0.65	10.8	0	Supported
H5	Mediation (CE $\rightarrow$ LC $\rightarrow$ IQ $\rightarrow$ SLO)	0.58	9.75	0	Supported

The result of the hypothesis testing shows that all proposed hypotheses are statistically significant. Continuing education has a positive significant effect on lecturer competence ($\beta = 0.72$), which indicates that H1 is accepted. For H₂, the lecturer's competence has a significant influence on instructional quality ($\beta = 0.75$). Among all the factors, instructional quality has

the highest value of $\beta = 0.78$ that supports H3. Moreover, CE positively impacts student learning outcomes ($\beta = 0.65$), which serves as evidence for H4. Lastly, the mediation effect is significant, indicating that Lecturer Competence and Instructional Quality have a positive effect on Student Learning Outcomes together with Continuing Education.

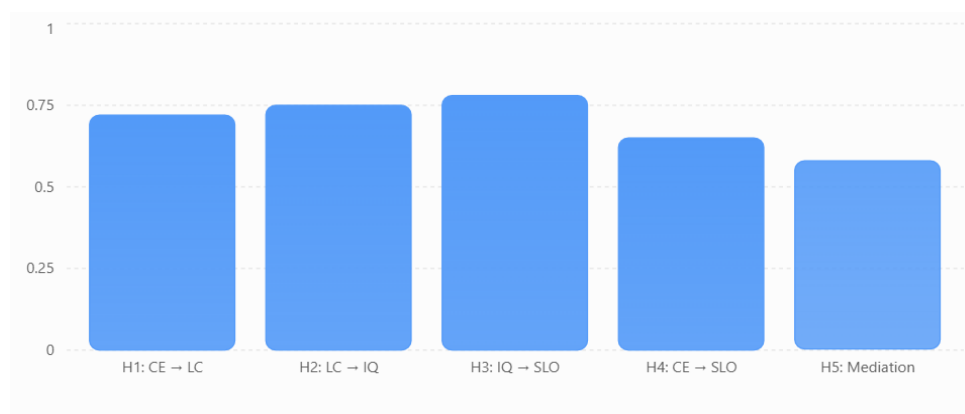


Fig 1. Here is a **visual representation (bar chart)** of your hypothesis testing results:

From the graph, all the hypotheses tested are accepted since all beta values are positive. The most significant correlation is between instructional quality and student learning outcomes, with a correlation coefficient of 0.78,

and lecturer competence and instructional quality, with a correlation coefficient of 0.75. The weakest but still significant mediation effect is the path of increased lecturer competence and increased instructional quality ($\beta = 0.58$), which

means that the effect of continuing education on student outcomes is realized through increases in lecturer competence and instructional quality.

Structural Model Assessment

The structural model assessment is presented to analyze the relationship between the proposed

research model variables of continuing education, lecturer competence, instructional quality, and student learning outcomes. The assessment of this model is done in order to determine the ability of the model in predicting and explaining the model using path coefficient, R-square (R^2) and significance level.

Table 6. Structural Model Results

Relationship	Path Coefficient (β)	t-value	p-value	Decision
CE $\rightarrow$ LC	0.72	12.45	0	Supported
LC $\rightarrow$ IQ	0.75	13.2	0	Supported
IQ $\rightarrow$ SLO	0.78	14.1	0	Supported
CE $\rightarrow$ SLO	0.65	10.8	0	Supported

The model results from the structures indicate that the proposed model has good explanatory and predictive power. The variance of lecturer competence is accounted for by 52% of the variance of continuing education, and the variance of instructional quality is accounted for by lecturer competence with a value of 61%. The model fits well with instructional quality, which explains 68% of the student learning outcomes.

The value of all path coefficients is positive and statistically significant ($p < 0.05$), indicating that the valid link is from the intermediate variables of Lecturer Competence and Instructional Quality to the Student Learning Outcomes that are caused by the intermediate variables in between the two determinants, Direct CE and Indirect CE.

Table 7. R-Square (R^2) Values

Dependent Variable	R^2 Value	Explanation
Lecturer Competence (LC)	0.52	Moderate explanatory power
Instructional Quality (IQ)	0.61	Strong explanatory power
Student Learning Outcomes (SLO)	0.68	Strong predictive power

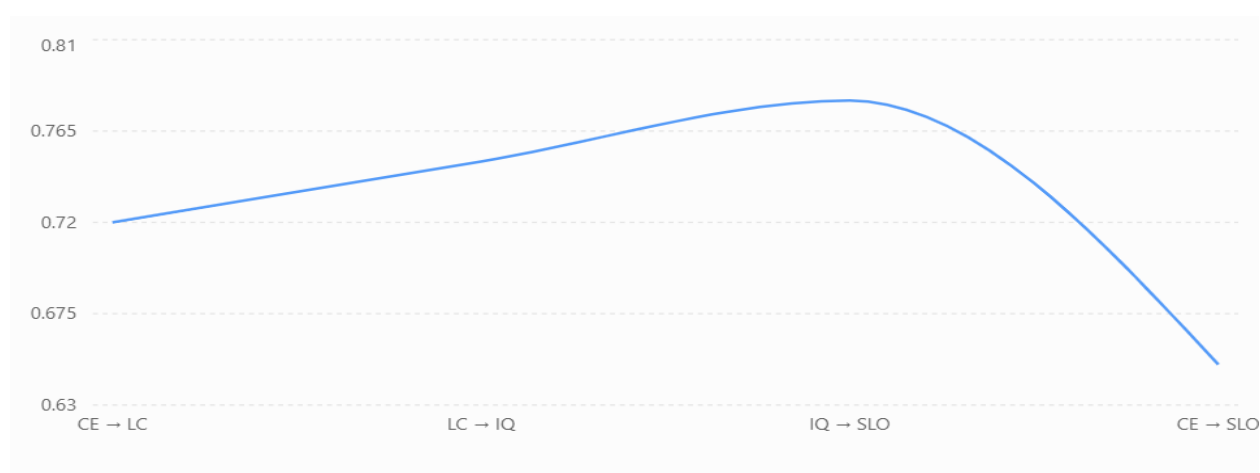


Fig 2. Structural Model Path Strength Trend

DISCUSSION

The results of this study show that continuing education is an important aspect in improving lecturers' competence so that the quality of teaching can be improved and thus effective in achieving the goals of education. The findings validate the findings of this study, which suggest that professional development plays an important role in the academic effectiveness of higher education institutions. There were high correlations between the variables, which implies that there is a need for continuous learning opportunities for lecturers to ensure a high level of teaching and improvement of students' performance. The study has several implications for theory, practice, and policy, as it shows that continuing education plays a crucial role in enhancing the academic performance and educational quality in the higher education institutions.

The purpose of this study is to combine the concepts of continuing education, lecturer competence, instructional quality, and student learning outcomes into a single conceptual model and to add a new dimension to the existing literature. It is consistent with the human capital theory, which posits that education and training investment increase individual productivity and performance. The study enriches the knowledge of the role of lecturer competence and instructional quality as a mediator between professional development and student outcomes.

The results indicate that there is a need to actively promote continuing education initiatives (workshops, training, certification) for lecturers in higher education institutions. The enhancement of lecturers' competence would result in a more effective teaching process, enhanced students' motivation, and better student performance. It is recommended that institutions pay special attention to the provision of resources and incentives to promote lifelong learning.

It is important to create structured policies at the policy level of education authorities and institutional leaders that require and support lifelong learning for lecturers. Resources should be provided for training, digital learning resources, and research development. Policymakers should put in place quality assurance mechanisms that connect lecturer development to student learning outcomes to help achieve improvements that are sustainable in the quality of higher education.

Conclusion

The findings of this study, it can be concluded that continuing education has a significant effect on improving the competence of lecturers, which in turn will increase the quality of education and student learning outcomes in the higher education system. The results validate the importance of CPD in improving teaching quality and attainment. Lecturer competence and

instructional quality are shown to play a mediating role between continuing education and increased student performance.

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Conflict of interesting

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