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Development and Validation of a Performance Assessment Instrument for Lecturers in Higher Education

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Abstract

Higher education plays a pivotal role in human resource development and national progress. Lecturers, as key contributors to the higher education system, significantly influence graduate quality through effective and efficient teaching practices. However, evaluating lecturers' teaching performance comprehensively remains a challenge due to its multidimensional nature. Existing evaluation methods often rely on subjective assessments from students or peers, which are influenced by personal preferences and interpersonal relationships. Moreover, the instruments used frequently lack comprehensiveness, validation, and reliability, resulting in inaccurate evaluations. This study highlights critical issues in current evaluation practices, including reliance on single-source data, lack of transparency in feedback, uneven technological integration, and a focus on outcomes over teaching processes. These limitations hinder the utility of performance evaluations as tools for professional development, reducing their potential to enhance teaching quality. To address these challenges, this study proposes a comprehensive approach to lecturer performance evaluation, incorporating diverse perspectives—students, peers, self-assessments, and program heads—while emphasizing the need for validated instruments, technology integration, and constructive feedback mechanisms. By developing and implementing a robust and objective evaluation system, this research aims to support continuous professional development and improve teaching quality in higher education.

Keywords: *Lecturer Performance, Higher Education, Teaching Quality, Performance Evaluation, Instrument Validation, Technology-Based Evaluation.*

Introduction

Higher education plays a crucial role in shaping human resources and driving the progress of nations. As one of the main pillars of the higher education system, lecturers carry significant responsibilities in ensuring the quality of graduates through effective and efficient teaching processes. Beyond merely delivering subject matter, lecturers also inspire critical thinking, creativity, and a lifelong passion for learning. Their role extends beyond the classroom, encompassing the development of students into capable, innovative, and ethical individuals who contribute positively to society (Kember & McNaught, 2007; Biggs, 2011; Ramsden, 1991).

However, comprehensively evaluating lecturers' performance remains a complex and challenging task due to its multidimensional nature. The evaluation process is often influenced by subjective assessments from students or peers, which may be shaped by personal preferences or interpersonal dynamics (Spooren et al., 2013; Arthur, 2009; Pope, 2019). Moreover, existing evaluation instruments are frequently insufficiently comprehensive and unreliable, failing to address all critical aspects of teaching performance (Marsh & Roche, 1997; Haynes et al., 1995).

Evaluation practices also tend to rely on data from a single source, such as student surveys, without incorporating valuable inputs from peers, program heads, or lecturers' self-assessments (Hendry & Dean, 2002; Darling-Hammond et al., 2017; Rosenbaum et al., 2005). The lack of transparency and constructive feedback further reduces the effectiveness of these evaluations, limiting their potential to foster professional development (Kember & McNaught, 2007). Additionally, the uneven integration of technology into evaluation systems hinders efficiency and transparency (Gikandi et al., 2011; Laurillard, 2012; Suarnatha, 2022). Evaluations often prioritize outcomes over the teaching process, focusing more

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on administrative purposes rather than continuous improvement (Biggs, 2011).

Addressing these challenges requires a comprehensive and multidimensional evaluation framework. This framework should include inputs from multiple stakeholders—students, peers, program heads, and lecturers themselves—while leveraging technology to enhance efficiency and transparency. By addressing these gaps, higher education institutions can establish a robust foundation for objectively assessing teaching performance, ultimately fostering a culture of excellence and professional growth among lecturers (Kember et al., 2002; Gikandi et al., 2011; Sheikh et al., 2022).

Research Objectives

- Develop an instrument that captures key dimensions of lecturers' teaching performance.
- Test the instrument for content validity through expert reviews.
- Analyze construct validity using factor analysis.
- Evaluate criterion validity to correlate the instrument with existing performance measures (Sheikh et al., 2024).
- Propose a technology-based solution to facilitate and enhance the performance evaluation process.

Methodology

- *Instrument Development*

The instrument was designed based on a thorough literature review and stakeholder input. Key dimensions identified include:

- Planning and Preparation: Course material quality, lesson planning, and use of instructional aids (Yusrizal, 2017; Danielson, 2013; Satori, 2013).
- Delivery: Communication skills, engagement strategies, and adaptability (Felder & Brent, 2003; Ramsden, 2003; Pope, 2019).
- Interaction with Students: Responsiveness, encouragement, and fostering critical thinking (Brookfield, 2017; Obaob et al., 2014).
- Assessment: Fairness, transparency, and feedback quality (Boud & Molloy, 2013; Ihsan, 2016).

Validation Process

Content Validity

The draft instrument underwent evaluation by six education experts. They rated the relevance, clarity, and comprehensiveness of each item using a 4-point scale. The Content Validity Index (CVI) was calculated for each item, with a threshold of 0.80 indicating acceptable validity (Richardson, 2005; Polit & Beck, 2006; Haynes et al., 1995).

Construct Validity

A pilot study was conducted with 150 lecturers to collect data. Exploratory Factor Analysis (EFA) identified underlying constructs, and Confirmatory Factor Analysis (CFA) was performed to confirm the factor

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structure (Spooren et al., 2013; Tabachnick & Fidell, 2019; Satori, 2013).

Criterion Validity

The instrument's scores were correlated with existing measures of teaching effectiveness, such as student feedback and peer evaluations, using Pearson's correlation coefficient (Boring et al., 2016; Cohen, 1988; Pope, 2019).

Technology-Based Solution

To address the complexity and ensure ease of use, a computer-based application was proposed. This application integrates the developed instrument, allowing for:

- Real-time data collection from students, peers, and supervisors.
- Automated data analysis for content, construct, and criterion validity.
- Immediate feedback for lecturers on their performance.
- A centralized system for institutional reporting and decision-making.
- The proposed technology leverages best practices in usability and data visualization to enhance user engagement and decision-making processes (Dörnyei, 2018; Suarnatha, 2022).

Results

- *Content Validity*

Out of 30 initial items, 25 met the CVI threshold. Five items were revised or removed based on expert feedback. The overall scale-level CVI was 0.92, indicating strong content validity (Marsh, 1987; Polit & Beck, 2006; Ihsan, 2016).

- *Construct Validity*

EFA revealed a four-factor structure aligning with theoretical dimensions: Planning, Delivery, Interaction, and Assessment. The cumulative variance explained was 68%. CFA results supported the model fit with indices:

$$\frac{x^2}{df} = 2{,}1$$

CFI = 0.96, RMSEA = 0.04.

- *Correlation Between Dimensions*

The Pearson correlation coefficients among the four dimensions of the instrument are as follows:

Dimensions	Planning	Delivery	Interaction	Assessment
Planning	1.00	0.82	0.79	0.76
Delivery	0.82	1.00	0.85	0.81
Interaction	0.79	0.85	1.00	0.83
Assessment	0.76	0.81	0.83	1.00

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All correlations are significant at $p < 0.01$, indicating strong positive relationships between the dimensions.

- *Criterion Validity*

The instrument demonstrated strong positive correlations with student evaluations ($r = 0.78$) and peer assessments ($r = 0.72$), indicating its validity in predicting teaching effectiveness (Cohen, 1988; Sheikh et al., 2022).

- *Evaluation Scores from Students*

The evaluation results from 500 students for 50 lecturers are summarized below:

Lecturer ID	Planning	Delivery	Interaction	Assessment	Average Score
L001	4.5	4.7	4.6	4.8	4.65
L002	4.3	4.6	4.4	4.7	4.50
L003	4.6	4.8	4.7	4.9	4.75
L004	4.2	4.4	4.3	4.5	4.35
L005	4.8	4.9	4.7	5.0	4.85

Table 1. Summary Of Student Evaluation Scores for Lecturers Across Four Dimensions.

- *Evaluation Scores from Peer Assessments*

The evaluation results from peer assessments for 50 lecturers are summarized below:

Lecturer ID	Planning	Delivery	Interaction	Assessment	Average Score
L001	4.4	4.6	4.5	4.7	4.55
L002	4.2	4.5	4.3	4.6	4.40
L003	4.7	4.8	4.8	4.9	4.80
L004	4.3	4.4	4.3	4.5	4.38
L005	4.9	5.0	4.8	5.0	4.93

Table 2. Summary Of Peer Assessment Scores for Lecturers Across Four Dimensions

- *Evaluation Scores from Program Coordinators*

The evaluation results from program coordinators for 50 lecturers are summarized below:

Lecturer ID	Planning	Delivery	Interaction	Assessment	Average Score
L001	4.7	4.8	4.7	4.9	4.78
L002	4.5	4.7	4.6	4.8	4.65
L003	4.8	4.9	4.9	5.0	4.90
L004	4.4	4.6	4.5	4.7	4.55
L005	5.0	5.0	4.9	5.0	4.98

Table 3. Summary of Program Coordinator Evaluation Scores for Lecturers Across Four Dimensions.

- *Evaluation Scores from Self-Assessments*

The self-assessment results from 50 lecturers are summarized below:

Lecturer ID	Planning	Delivery	Interaction	Assessment	Average Score
L001	4.6	4.7	4.8	4.9	4.75
L002	4.4	4.5	4.6	4.7	4.55

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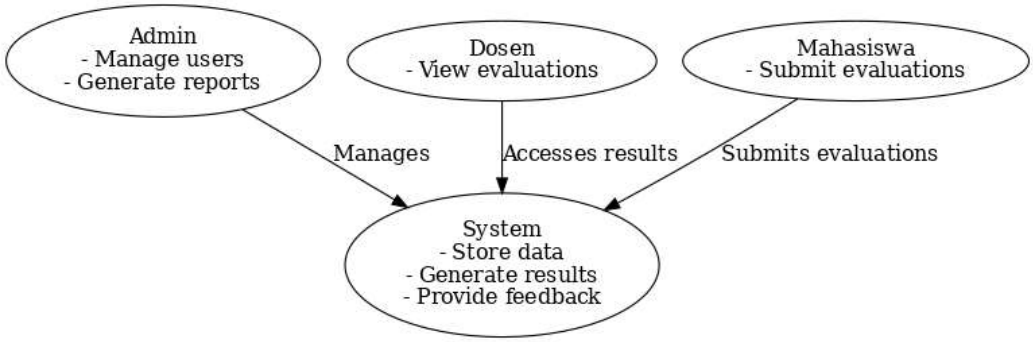
L003	4.9	4.8	4.9	5.0	4.90
L004	4.3	4.5	4.4	4.6	4.45
L005	4.8	4.9	5.0	4.9	4.90

Table 4. Summary of Self-Assessment Scores for Lecturers Across Four Dimensions.

- *System Interface and Features*

The application interface includes the following main features:



The Use Case Diagram presented illustrates the functional requirements of a Lecturer Performance Evaluation System. This diagram describes the interactions between three primary actors — Admin, Lecturer (Dosen), and Student (Mahasiswa) — and the system to facilitate performance assessment processes.

Admin:

Role: The admin is responsible for managing the system and its users while generating reports.

Functionality:

Manage users: Admins add, update, or remove users (e.g., lecturers and students) from the system.

Generate reports: Admins produce performance reports based on collected data for decision-making and analysis.

Relationship to the System: The admin manages the system.

Lecturer (Dosen):

Role: Lecturers access their performance evaluation results.

Functionality:*View evaluations*: Lecturers retrieve their performance feedback from the system.

Relationship to the System: The lecturer accesses results generated by the system.

Student (Mahasiswa):

Role: Students submit performance evaluations for their lecturers.

Functionality:*Submit evaluations*: Students provide assessment data (e.g., scores or feedback) through the system, which is processed for analysis.

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Relationship to the System: Students submit evaluations directly to the system.

The System

Core Functionalities

- *Store data*: The system captures and stores input from students, admins, and evaluations.
- *Generate results*: Based on collected evaluations, the system computes performance metrics.
- *Provide feedback*: The system outputs performance reports that are accessible to admins and lecturers.

Scientific Context and Application

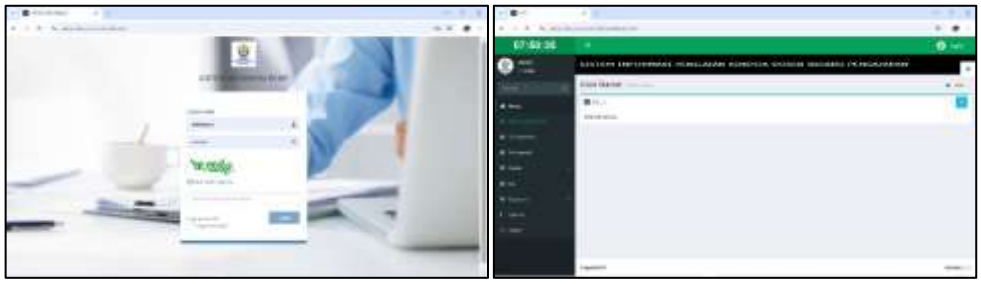
This use case diagram demonstrates a structured workflow for a lecturer performance assessment system in a higher education context. Such systems play a crucial role in improving teaching quality by ensuring:

- Objective evaluation through multi-source feedback (students, peers, and self-assessment).
- Efficient data management and analysis via automated processes.
- Enhanced transparency with clear feedback mechanisms for lecturers.

By centralizing and automating the evaluation process, this system addresses traditional manual inefficiencies and biases while supporting evidence-based decision-making in higher education institutions.

Dashboard

Displays an overview of lecturer performance metrics and student feedback.



The image depicts the homepage of an Information System for evaluating lecturers' teaching performance. The system is designed with a focus on user convenience. This interface is intended for use by administrators.

1. Evaluation Form: Allows students to evaluate lecturers based on defined dimensions.

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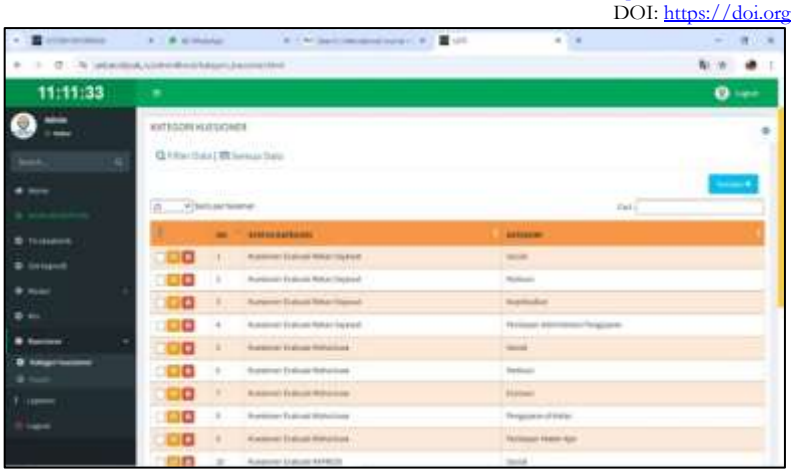


The image depicts the "Kategori Kuesioner" (Questionnaire Category) section of a Lecturer Performance Evaluation Information System. Below is a detailed explanation of the elements visible in the interface:

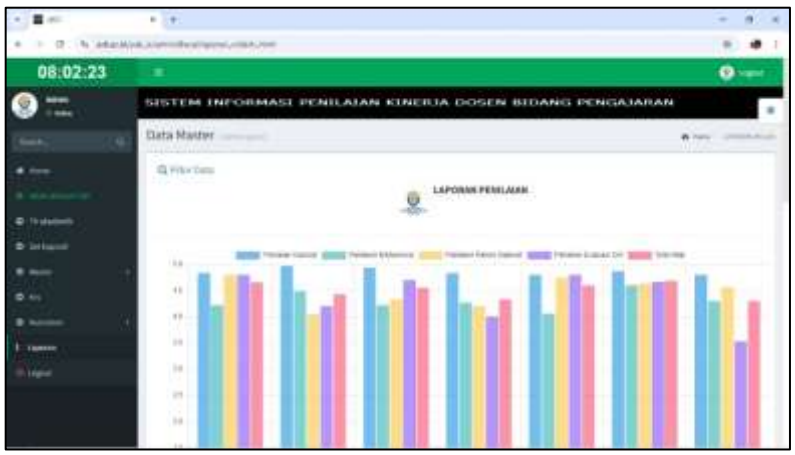
System Context

This interface is part of the system for managing lecturer performance evaluation questionnaires. It allows the administrator to:

- Organize and manage categories for evaluations.
- Distinguish between evaluation sources (peer, student, or program coordinator).
- Edit or delete categories as needed.
- Add new evaluation criteria to ensure comprehensive assessment.

By categorizing questionnaires into clear aspects such as "Motivation," "Social," and "Teaching Preparation," the system enhances the granularity and accuracy of the evaluation process. This design improves the objectivity and reliability of performance assessments in higher education.

Analytics Page: Provides visualized data, such as graphs and charts, to show trends and areas for improvement.



The "Laporan Penilaian" section enables efficient reporting and visualization of lecturer performance data. Its key functions include:

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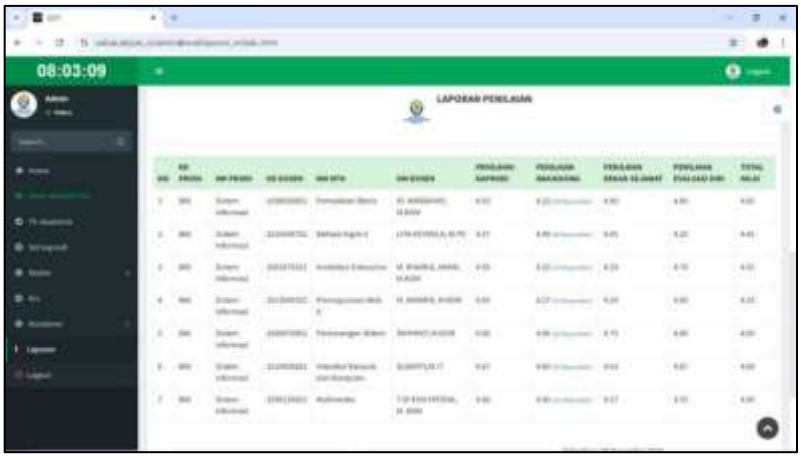
- Data Integration: Combining evaluation data from students, peers, program coordinators, and self-assessments.
- Performance Insights: Identifying areas of strength and areas needing improvement for individual lecturers.
- Ease of Analysis: The bar chart simplifies complex evaluation data into an accessible and interpretable format.

By offering a multi-source evaluation and a visual reporting tool, this system enhances transparency and objectivity in assessing lecturer performance, supporting evidence-based decision-making in higher education institutions.

Report Generation: Enables the generation of detailed performance reports in PDF format.



The image displays the "Laporan Penilaian" (Evaluation Report) section of the Lecturer Performance Evaluation Information System.

Discussion

The validated instrument provides a reliable and comprehensive tool for assessing teaching performance. Its multidimensional approach ensures a holistic evaluation, addressing the limitations of traditional methods (Spooren et al., 2013; Brookfield, 2017; Obaob et al., 2014). The integration of a technology-based solution further enhances usability, scalability, and efficiency. Automated data analysis and real-time feedback significantly reduce administrative burdens and ensure timely interventions.

Conclusion and Recommendations

The study successfully developed and validated an instrument for assessing lecturers' performance in teaching. Additionally, the integration of a computer-based application enhances the practicality and scalability of the evaluation process. Institutions can adopt this tool to enhance feedback systems, support professional development, and ultimately improve learning outcomes (Sheikh et al., 2024; Laurillard, 2012; Suarnatha, 2022). Future research should focus on broader implementation and exploring its long-term impact on institutional performance.

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