Building Bridges: Assessment Skills as a Mediator in the Relationship between Professional Learning and Attitude Toward Assessment Practices among Malaysian University Lecturers

Noor Asiah Hassan[1*], Nor Hasnida Che Md Ghazali [2], Rodiah Mohd Hassan[1], Siti Hawa Mohd Yusoff[1], Yati Ashikin Abdul Wahab[1]

[1]Faculty Engineering & Life Sciences, UNISEL, Malaysia,
*noorasiah@unisel.edu.my, rodiah@unisel.edu.my, hawa.yusoff@unisel.edu.my, y_ashikin@unisel.edu.my
[2]Faculty Human Development, Universiti Pendidikan Sultan Idris, Malaysia
hasnida11@yahoo.co.uk

Abstract:

Overview of the Study (Research Problem, Aim and Objectives): This study addresses the crucial relationship between professional learning, assessment skills, and the attitudes of Malaysian lecturers towards assessment practices (ATAP) grounded in Guskey's Model of Teacher Change (2002). By exploring the intermediary role of assessment skill, the research aims to enhance our understanding of the intricate dynamics that influence lecturers' perspectives on assessment. The predominant goal is to provide valuable insights for optimizing professional learning initiatives to positively shape AS and improve the attitude toward assessment among Malaysian lecturers.

Design/Methodology/Approach: Employing a quantitative methodology, the study utilizes Structural Equation Modeling (SEM) and SPSS version 26.0 for data analysis. The study encompasses 400 lecturers from various Malaysian universities, selected through a multistage sampling technique. These participants completed a comprehensive questionnaire gauging their perspectives on professional learning, assessment skills, and the attitudes toward assessment. SEM AMOS version 24.0 analysis was employed to examine both the direct and indirect relationships between the variables.

Results/Findings: The outcomes reveal that assessment skills serves as a partial mediator in the association between professional learning and ATAP. The ATAP accounts for 45% of the total explained variance by professional learning and assessment skill.

Conclusion and Implications: These findings carry substantial implications for educational institutions and policymakers. Fostering professional learning in academic settings can enrich assessment skill for lecturers, consequently positively influencing their ATAP. Recognizing the vital role of professional learning can inform the implementation of impactful professional development initiatives, promoting the enhancement of lecturers' skills in assessment practices.

Keywords: Assessment Skills, Attitude Toward Assessment, Malaysian Lecturers, Professional Learning.

1. Introduction

This study examines the connections between professional learning, assessment skills, and the attitudes of Malaysian university lecturers toward assessment. It highlights the role of assessment skills as a mediator, bridging the gap between professional learning and positive attitudes among lecturers. Kitiashvili's (2014) findings reveal positive educator attitudes toward assessment methods requiring cognitive complexity, but a lack of alignment with actual assessment practices. This raises questions about the translation of positive attitudes into

instructional strategies. In the diverse context of Malaysian higher education, the study emphasizes understanding the relationships between professional learning, assessment skills, and attitudes. Aligning with Guskey's Model of Teacher Change, the research focuses on the mediating influence of assessment skills, proposing them as vital bridges connecting broader professional learning with individual attitudes.

2.   Literature Review

In recent years, education has shifted from traditional summative assessments to a more comprehensive approach, integrating formative assessment and continuous feedback. This transition is grounded in research emphasizing assessment as a valuable learning tool (Black & Wiliam, 1998). Educators' attitudes significantly influence assessment practices, impacting how they design and implement assessments (Brookhart, 2011). Understanding these attitudes is vital for promoting effective assessment practices and positive learning outcomes (González-Gómez et al., 2022). Educators' attitudes about assessment's purpose, feedback, and alignment with learning objectives shape their approach to designing assessments. Some view assessment primarily for measurement, while others see it as a tool for supporting learning, aligning with formative assessment practices (Sewagegn, 2019).

In the dynamic landscape of Malaysian higher education, understanding the nuanced relationships between professional learning, assessment skills, and attitudes toward assessment is crucial. Encouraging collaboration, experimentation, and a deep understanding of assessment principles through professional learning can positively impact educator attitudes (Anthony et al., 2019). Professional learning influences attitudes by fostering collaboration, experimentation, knowledge of assessment principles, and reflective practices. This study hypothesizes that professional learning significantly influences lecturers' attitudes (Ha1). Assessment skill is proposed as a mediator between professional learning and lecturer attitudes (Ha2). Customizing professional development opportunities to educators' diverse skill levels and tailoring training to individual needs can foster a positive attitude toward integrating assessment practices into teaching methodologies.

3.   Methodology

The study employed a quantitative cross-sectional design to investigate the assessment skills, professional learning, and attitudes toward assessment among lecturers in selected universities in Peninsular Malaysia. The study focused on Malaysian lecturers in higher education institutions in East Malaysia. A total of 400 lecturers were selected using a multi-stage sampling approach, ensuring a representative sample. The sampling involved the sequential selection of universities, faculties, and randomly chosen lecturers. The study utilized various tools, summarized in Table 1, to measure constructs such as ATAP (Attitude Toward Assessment Practices), Professional Learning, and Assessment Skill. The tools included adapted questionnaires with items originating from previous research, specifying the number of items for each subconstruct, and the scale intervals.
Data Analysis:

Descriptive analysis was employed initially to provide an overview of the data, including key statistics and visual representations of variables. Confirmatory Factor Analysis (CFA) was used

to validate the measurement model, ensuring the unidimensionality, validity, and reliability of latent constructs before constructing the structural model for Structural Equation Modeling (SEM).

4.   Results

The sample included 400 participants, with 37% male and 63% female lecturers. Majority of respondents had teaching experience in the range of 11 to 15 years (34%), followed by 16 to 20 years (23.6%), 6 to 10 years (22.4%), less than 5 years (12%), and more than 21 years (8%). About 59% held a Master's degree, 36% held a Ph.D., and 5% had a bachelor's degree. Skewness and kurtosis values indicated data normality, supporting the robustness of Confirmatory Factor Analysis (CFA).

4.1   Descriptive Statistics of Respondents

The examination of descriptive statistics revealed that lecturers consistently provided 'high' mean ratings across all variables. Likewise, lecturers' assessments of ATAP, Professional Learning, and Assessment Skill mirrored this trend, with mean scores falling within the range of 7.75 to 8.86 (Table 2). The sustained high ratings indicate that the surveyed individuals perceived these constructs as firmly established within the universities being studied. Significantly, the findings exceeded our initial expectations, considering our familiarity with Malaysian higher institutions and the limited existing empirical literature on lecturer learning in the educational settings of Malaysia. To illustrate, the conventional understanding of 'professional learning' in the Malaysian higher education system has traditionally been associated with formal workshops rather than the broader spectrum of learning activities investigated in this study.

Table 2. Descriptive statistics for lecturer data.

Constructs	Lecturers (n=400)	
	Mean	SD
ATAP		
Affective	8.86	0.84
Course	8.40	0.99
Relevance	8.06	1.04
Professional Learning		
Knowledge	8.07	1.21
Reflection	7.82	1.28
Experiment	7.86	1.24
Collaboration	8.00	1.10
Assessment Skill		
Design	8.24	0.96
Administration	7.75	1.02

Application	7.86	1.01
Interpretaion	7.82	1.09

4.2   Confirmatory Factor Analysis Results

Figure 1 depicts the measurement model utilized in the study, showcasing favorable fitness indices (RMSEA < 0.1, CFI > 0.90, TLI > 0.90, and Chi/df < 3.0) that meet the criteria for construct validity. The specific values for these indices are detailed in Table 3. In Table 6, factor loading values, AVE, and CR for the measurement model are provided, indicating compliance with the unidimensionality requirement as all item factor loadings exceed 0.6. Additionally, the measurement model satisfies criteria for convergent validity and reliability, with CR and AVE values surpassing 0.6 and 0.5, respectively.

The adequacy of the fit for the structural model was assessed by comparing fitness indices with established threshold values from the literature, as outlined in Table 3. As illustrated in Figure 2, the final measurement model incorporates 62 items, with fitness indices (RMSEA, TLI, CFI, and Chisq/df) meeting the necessary standards. Furthermore, the correlations among the three study constructs were similar but not identical, indicating varied relationships between the constructs. These findings indicate the absence of multicollinearity, as no correlation coefficient exceeded 0.90. The achievement of discriminant validity is affirmed in Table 5.
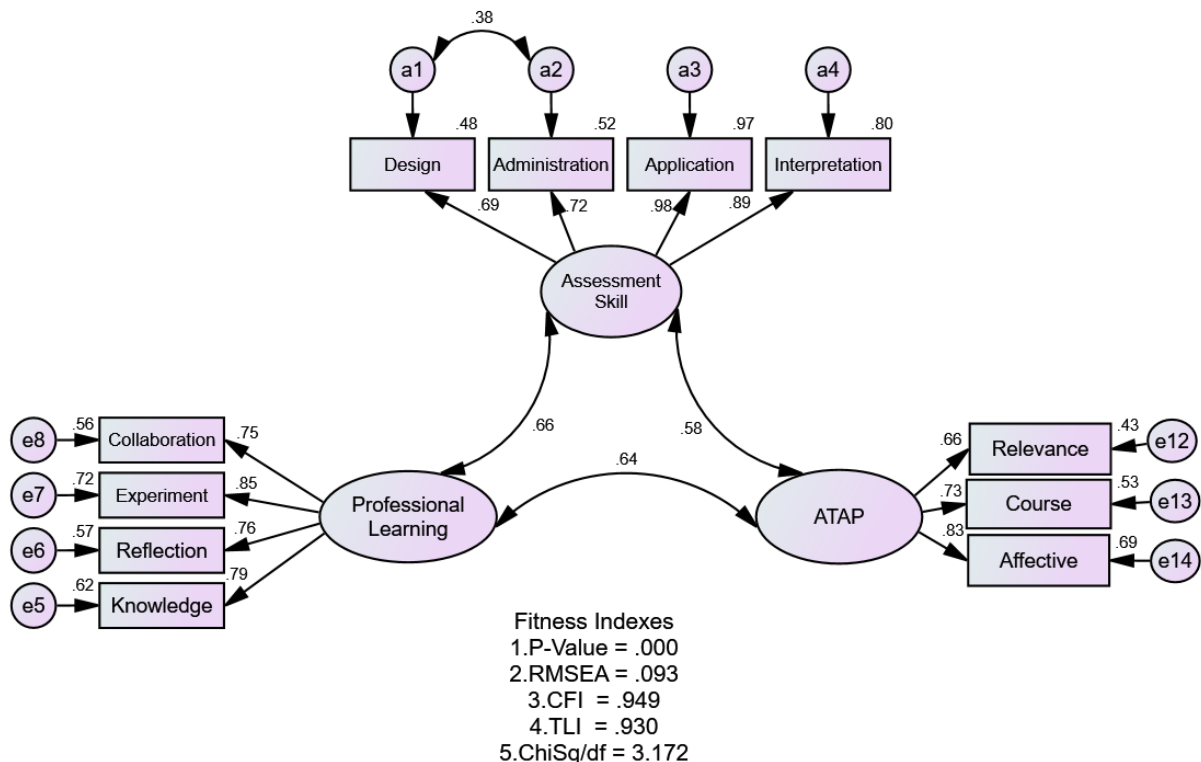

Figure 2. The Pooled-CFA Results to validate three constructs simultaneously

Table 3. The assessment of fit for the Measurement Model

Category	Name of Index	Fit Criteria	Present model	Comment
Parsimonious Fit	Chisq/df	$1.0 \leq \chi2 / df \leq 5$	3.172	Min requirement < 3.0
Incremental fit	CFI	> 0.90	0.949	Min requirement > 0.9
	TLI	> 0.90	0.930	Min requirement > 0.9
Absolute fit	RMSEA	≤ 0.10	0.093	Min requirement < 0.1

Table 4. Validity and Reliability Test of the Measurement Model

Construct	Item	Factor Loading	CR (above 0.6)	AVE(above 0.5)
Assessment Skill	Design	0.69	0.896	0.687
	Administration	0.72		
	Application	0.98		
	Interpretation	0.89		
Professional learning	Knowledge	0.79	0.868	0.622
	Reflection	0.76		
	Experiment	0.85		
	Collaboration	0.75		
ATAP	Affective	0.83	0.786	0.552
	Course	0.73		
	Relevance	0.66		

Table 5. Summary of Discriminant Validity

Construct	ATAP	Professional learning	Assessment Skill
ATAP	*0.74*		
Professional learning	0.64	*0.79*	
Assessment Skill	0.58	0.66	*0.83*

4.3   Model Testing

Figure 3 illustrates the outcomes of the proposed structural model designed to explore the connections between Professional Learning, Assessment Skill and ATAP. The factor loading weights in the hypothesized model are deemed significant based on SEM (Structural Equation Modeling) analysis, as the chi-square norm meets the required threshold of below 5 (Hair et al., 2014), registering a value of 3.172, indicative of a satisfactory fitness index. Both TFI (0.930) and CFI (0.949) surpass the 0.90 threshold, signifying a good fit according to Hair

et al. (2014). The RMSEA of 0.093 aligns with the cutoff value of 0.10 (Hair et al., 2014), providing further evidence of the model's appropriateness. In summary, the estimates derived from the structural model demonstrate a strong fit with the data.

Conversely, the results presented in Table 6 clearly indicate, firstly, a significant association between professional learning and ATAP. This is substantiated by the regression path coefficients between ATAP and Professional Learning (0.292), which measures the impact of the exogenous construct on the endogenous construct, being significant with a *p*-value of 0.001 (Table 6; Figure 3). This suggests that Professional Learning does indeed influence the lecturer's attitude.

Table 6. The regression coefficient and its significance.

Construct	Path	Construct	Std estimate	*p*-value	Result
AS	<---	PL	0.506	0.001	Significant
ATAP	<---	AS	0.229	0.002	Significant
ATAP	<---	PL	0.292	0.001	Significant

AS= Assessment Skill; PL= Professional Learning; ATAP=Attitude toward Assessment Practice

Furthermore, the results also indicated a significant association between professional learning and assessment skill with *p*-value of .001 and a regression weight of 0.506 (Table 6; Figure 3). This underscores the importance of subsequent pathways, suggesting that higher levels of professional learning are linked to a higher skill in implementing the assessment practices. Consequently, professional learning emerges as a robust predictor of assessment skills.

Moreover, the study identified that assessment skills acted as a mediator in the relationship between professional learning and ATAP. The indirect effect of professional learning on ATAP through assessment skill was significant, while the direct effect of professional learning on the ATAP was also significant. Therefore, the mediation was established. In simpler terms, assessment skill played a partial mediating role by intervening between professional learning and ATAP to facilitate their relationship.

The hypothesis testing presented in Table 6 was corroborated through a bootstrapping procedure, and the outcomes are outlined in Table 7. The study utilized the Maximum Likelihood bootstrapping method with 2000 bootstrap samples, incorporating both percentile confidence intervals and biased-corrected confidence intervals set at 0.95. The bootstrapping findings in Table 7 revealed that professional learning does exert a significant direct influence on lecturers' attitude toward assessment practices ($\beta = 0.506$, p $= 0.001$) as well as professional learning does significantly impact ATAP even when assessment skill is considered as the mediator in the relationship ($\beta = 0.182$, p $= 0.006$).

Comparing the results in Table 7 with those in Table 6, it can be inferred that the bootstrapping analysis aligns with the conclusions drawn from Table 6. These results underscore the partially mediating role of assessment skill in the relationship between professional learning and the attitude of the lecturer. Not only that, The ATAP contributes to

understanding 45% of the overall variability explained by both professional learning and assessment skills.
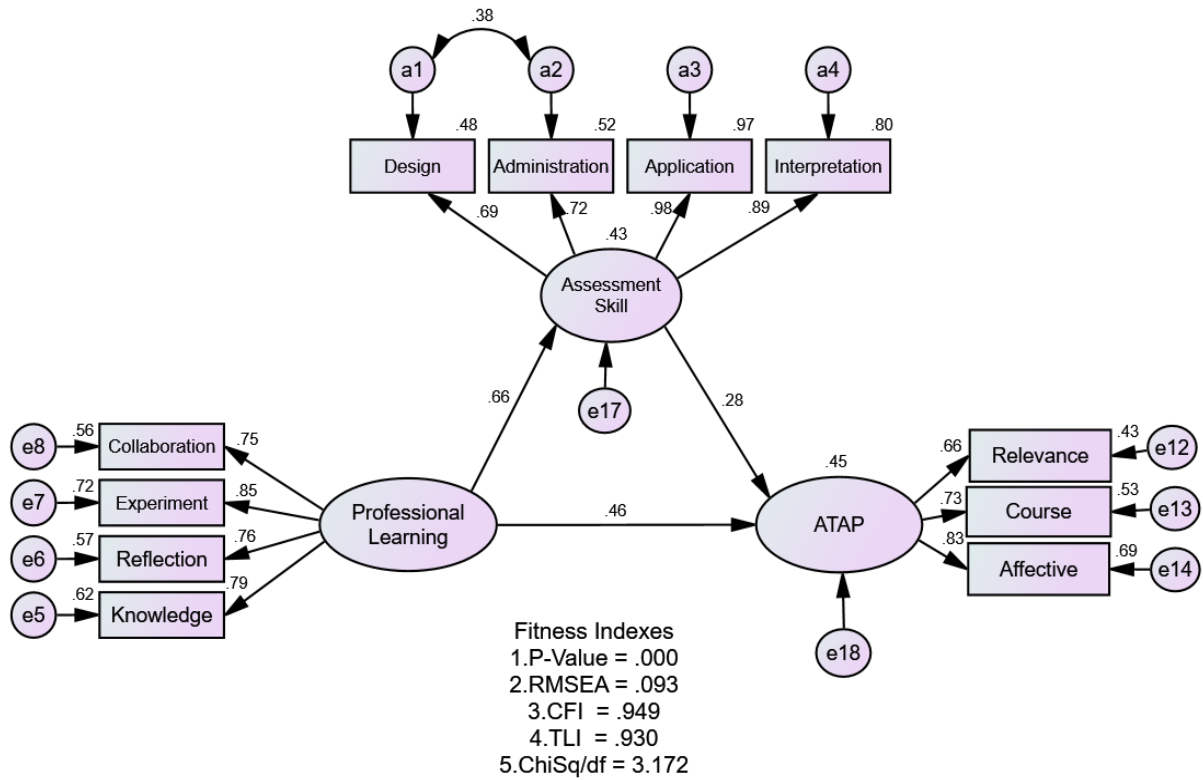

Figure 3. The standardized Regression Path Coefficient among constructs in the model.

Table 7. The bootstrapping results to confirm mediation test

	Indirect effect	Direct
Bootstrapping value	0.182	0.458
Probability value	0.006	0.001
Results on mediation	Significant	Significant

5.   Discussion and Conclusion

The favorable attitudes of lecturers play a vital role in embracing changes in assessment practices, given that attitude and knowledge are pivotal factors influencing lecturers' preparedness for their responsibilities (Manasia et al., 2019). Our analysis has revealed a compelling relationship between professional learning, assessment skills, and educators' attitudes toward assessment. This triangulation of factors sheds light on the intricate dynamics that influence educators' perspectives within the realm of assessment. The observed correlation underscores the pivotal role of professional learning in shaping educators' attitudes. Notably, collaborative experiences and experimentation within professional development initiatives

emerge as significant contributors to cultivating positive attitudes toward assessment. Educators who engage in such learning opportunities appear to foster a sense of community and openness, thereby positively influencing their overall attitude.

The findings further highlight a strong connection between educators' assessment skills and their attitudes. Those with enhanced skills exhibit a more positive mindset, potentially attributed to heightened confidence, adaptability, and a nuanced understanding of the assessment process. This correlation reinforces the idea that investing in the development of assessment skills can serve as a catalyst for cultivating positive attitudes among educators. Crucially, the interactive nature of professional learning and assessment skills amplifies their impact. Educators experiencing growth in assessment skills through targeted professional development may find their positive attitudes reinforced by collaborative learning experiences.

The SEM analysis has uncovered a noteworthy mediation effect, revealing that assessment skills act as a mediator in the relationship between professional learning and educators' attitudes toward assessment. This mediation suggests that the influence of professional learning on attitudes is, in part, exerted through the intermediary role of assessment skills. Professional learning, as a catalyst for growth, appears to stimulate the development of assessment skills among educators. This acquired proficiency in assessment skills, in turn, plays a crucial role in shaping their attitudes toward assessment. The mediation effect suggests that professional learning does not directly impact attitudes but does so indirectly through the development of assessment skills.

For educational institutions, these findings bear practical implications. Targeted investment in professional development programs that specifically enhance assessment skills can be instrumental in fostering positive attitudes among educators. Institutions are encouraged to design initiatives that not only address skill development but also foster collaborative learning environments. Creating opportunities for hands-on experimentation could further enhance the effectiveness of these programs. Moreover, understanding the specific needs of educators and customizing professional development to suit diverse skill levels is crucial for successful implementation. Challenges may arise in resource allocation, faculty engagement, and aligning these initiatives with existing institutional structures.

Based on these insights, we recommend educators actively seek ongoing professional learning opportunities that target assessment skills. Additionally, educational institutions should prioritize the design of comprehensive programs that integrate collaborative practices and hands-on experimentation, recognizing their potential to positively impact educators' attitudes and, consequently, improve student outcomes.

While our study provides valuable insights, it is important to acknowledge its limitations. Contextual factors may have influenced the observed relationships, and a more in-depth exploration of these factors could contribute to a more comprehensive understanding. Future research could delve deeper into specific elements within professional learning or assessment skills. For example, examining the impact of different types of professional development or assessing the long-term effects of enhanced assessment skills on teaching practices and student outcomes would provide valuable insights. Additionally, exploring the role of technology in facilitating professional development and skill enhancement is an avenue for future investigation.

In conclusion, the identified relationship between professional learning, assessment skills, and educators' attitudes toward assessment offers valuable insights. By recognizing and leveraging these connections, educators and educational institutions can work collaboratively to enhance teaching practices and, ultimately, enrich the learning experiences of students.

5.   Bibliography

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