Navigation of Pedagogical Excellence: Mobile Learning's Moderating Effect on Teachers' Pedagogical Competency and Professional Competency in Evaluating Students Religious Characters

Sadam Fajar Shodiq[1,*], *Anisa Dwi* Makrufi[2], *Khotim Hanifudin* Najib[3], *Limason* Goselfa[4], *Nadira Putri* Valencia[5], *Fadhila Aisyah* Nurunisa[6]

[1,2,4,5,6] Departement of Islamic Education, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia
[3] Primary Teacher Education Departement, Universitas Sarjanawiyata Tamansiswa, Yogyakarta, Indonesia

Abstract. This study examines the impact of mobile learning on teachers' pedagogical and professional competencies as well as their religious disposition. The research was carried out at SMA Muhammadiyah 6 and SMA Muhammadiyah 5 Yogyakarta with the aim of gaining a deeper comprehension of mobile learning in the context of education. This study employed a quantitative research design and recruited a total of 102 individuals through the use of random sampling. Information was gathered through the use of questionnaires consisting of 34 statements. The questionnaire responses exhibited high dependability, as shown by a reliability coefficient of 0.7. Hypotheses were tested using multiple linear regression. The study revealed that teachers' educational and professional competencies enhance their religious nature. The initial moderating influence had a notable adverse effect on the religious nature, but the later influence was favourable. The results did not provide evidence to support the hypothesis that mobile learning had a moderating effect on these talents and religious character. The schools SMA Muhammadiyah 6 and 5 in Yogyakarta provide evidence that the implementation of mobile learning enhances teaching methods and fosters the promotion of Islamic principles. These findings indicate that instructors and students must comprehend the learning process in order to attain the best possible educational outcomes. Mobile learning can be included into the teaching and evaluation processes at educational institutions to anticipate educational progress.

1 Introduction

Competence in a teacher refers to their ability to effectively motivate and guide students towards achieving comprehensive learnin (1). Nevertheless, as a result of evolving times and

* Corresponding Author: sadamfajarshodiq@fai.umy.ac.id

the advent of more sophisticated technology epochs, educators must adapt their cognitive processes to stay abreast of current developments. It is essential for teachers to continuously update their pedagogical expertise, particularly in teaching methods including technology, in order to maintain their professionalism in the field of education (2). To attain effective and indirect communication skills, a teacher must also meet certain requirements, specifically the need to enhance their abilities (3). Educators require skills to adopt multiple perspectives while analysing classroom settings (4). Proficiency in a wide range of skills possesses inherent appeal in the realm of education that is not possessed by everyone. The pedagogical competency skills of a teacher are intricately linked to their professional competence and cannot be disentangled. Possessing teaching talents without professional expertise can have detrimental consequences in the long run. Proficiency in both professional and pedagogical skills is crucial while confronting obstacles as an educator in the field of evaluation.

Teachers' proficiency in learning also stimulates their professional endeavours to successfully plan student learning (5). Ensuring students retain knowledge is crucial for preserving the future of the planet, and this responsibility falls on teachers in schools, who must possess exceptional qualifications (6). Inadequate teacher competency can contribute to the persistence of success inequalities and their visible effects in the school setting (7). Educators who demonstrate a high level of professionalism and positive attitudes can effectively enhance and elevate the teaching process (8). Additionally, educators play a crucial role in the lives of teenagers, necessitating their possession of professional competence in teaching (9). The current teacher's proficiency in pedagogical and professional skills is also anticipated to enable them to assess pupils' religious demeanour.

An assessment of religious character should be conducted by competent teachers due to the significant impact of education during various phases of human life (10) . The schooling phase is a crucial period during which an individual possesses the ability to strategically chart their future job path (11). Evaluating the religious character of pupils is crucial for teachers, since it significantly impacts their future lives and underscores the relevance of education. Despite inadequate evaluations, religion exerts a significant influence on health behaviours, such as alcohol and drug consumption (12). Religious views have an impact on a student's moral cognition. Students that display inconsistency and instability often lack stable moral cognition. Behaviour and beliefs are significant factors in late adolescence as individuals strive to develop a sense of self-identity (13). Frequent evaluation of character education in schools is necessary due to the prevalence of negative obstacles faced by many children (14).

The evaluation of religious character education has a lasting impact on the ongoing trajectory of students' lives due to the inherent presence of faith in human nature and the acquisition of religious comprehension. According to Moncher & Josephson (15), students lacking strong religious character are more likely to engage in various criminal behaviours, such as suicide and instances of student pregnancy. In order to effectively evaluate education, it is crucial for instructors to possess both pedagogical and professional competence. This includes recognising and understanding the religious beliefs of pupils, as these beliefs can have a significant impact on shaping the future societal structure (10). Religious character should be consistently prioritised in education, as religious variables significantly impact a student's trajectory and moral development. Indeed, the significance of studying the practical aspects of religion is highlighted by the fact that 27% of Muslim households in Piedmont engage in educational programmes. Additionally, a study conducted by Giorda & Giorgi (16) revealed that 70% of Muslim families expressed a preference for experienced educators to provide these educational courses. Therefore, it is essential that evaluation be assessed by teachers who possess the necessary expertise to anticipate the students' circumstances. Nevertheless, during the assessment, it is crucial to bear in mind the dynamic nature of the 5.0 era, when technology has become an integral part of everyone's everyday routines.

The utilisation of digital-based learning technology is evident across different educational levels, as indicated by (17). Teachers possessing pedagogical and professional expertise should facilitate learning without being constrained by spatial or temporal limitations. Technology can facilitate the evaluation of pupils' religious character by providing teachers with dedicated applications to track and assess their religious development. This finding aligns with the research undertaken by Raudeliuniene et al (18), which indicates that 50% of the global population is actively transitioning from traditional forms of communication and information acquisition to social network services. The education business wields significant influence and is closely connected to digital technology and devices for the dissemination of educational materials. Acquiring knowledge (19). The mobile phone learning style is highly focused on individual and personalised learning, requiring students to demonstrate responsibility and initiative (20). Naturally, while utilising a mobile device for indirect learning, the evaluation process should also employ a mobile device methodology to effectively assess the positive and negative outcomes it generates.

The exceptional portability of mobile learning aligns perfectly with the ideology of being able to learn at any time and in any location. In the evaluation process, it is crucial to consistently leverage the benefits of enhanced mobility in mobile learning, utilising existing support systems to facilitate a smoother navigation via various pathways. Mobile technology's rapid advancement underscores the importance for every teacher to possess knowledge of active mobile pedagogy (21). The presence of intelligent devices and wireless connectivity creates an expectation of constant efficiency in enhancing communication (22). Undoubtedly, teacher competence is essential as it facilitates meaningful student engagement with knowledge and fosters effective learning outcomes. Educational evaluation is closely linked to the competence of teachers and professionals, particularly when assessing the religious character of students. The presence of a wireless network enables the observation of students' religious inclinations through mobile learning, as students are connected and able to access a wide range of offered information (23). In order to analyse evaluations based on mobile learning, it is essential to possess pedagogical and professional teacher competency, as well as proficiency in using user-friendly gadgets and accessing wireless networks at any given moment. Assessing the religious nature necessitates examining the current circumstances to identify valuable lessons for future growth.

2 Methods

2.1 Approach

This study employs a quantitative research methodology. Quantitative research is a research methodology that relies heavily on numerical data for analysis and interpretation. Quantitative research employs a systematic technique to gather data and applies statistical tools to evaluate and analyse the findings. Research employing quantitative approaches will yield statistically significant findings among the variables under investigation. Quantitative research primarily relies on samples of individuals and their behaviour to make broad inferences about the characteristics and patterns observed in larger groups or populations (24).

2.2 Sample of Research

The study was conducted on students from SMA Muhammadiyah 5 Yogyakarta and SMA Muhammadiyah 6 Yogyakarta. This research sample was conducted using a random

selection of students from SMA Muhammadiyah 5 Yogyakarta and SMA Muhammadiyah 6 Yogyakarta. Example The study was carried out with a survey consisting of 102 participants.

2.3 Instrument and Procedures

This study employs a survey instrument utilising data collection methodologies. The collecting of respondent data was conducted through the utilisation of Google Form and a questionnaire. This study used a Likert scale to evaluate the research questionnaire. The Likert scale is employed to elicit respondents' indication of their degree of agreement or disagreement with the statements presented in the questionnaire. The Likert scale score is displayed in Table 1 below.

Table 1. Likert Scale

Alternative Answers	Scoring	
	Positive	Negative
Strongly Disagree	5	1
Disagree	4	2
Doubtful	3	3
Agree	2	4
Strongly Agree	1	5

The measurement of the mobile learning variable is conducted using a model created by El-hussein & Cronje (25). This scale comprises metrics for the technological mobility, learner mobility, and learning mobility. Based on the factor calculations for each variable in mobile learning, all the items for each indicator obtained a value of ≥ 0.5, indicating that all instrument items are considered legitimate. Instrument reliability testing employs composite reliability evaluations for both indicators and constructs. The calculation findings for each item of the mobile learning variable instrument indicate a composite reliability greater than 0.7. This result indicates that the level of the mobile learning variable is relatively high.

The model established by Madharam & Laverie (26) is used to measure the variables of teacher pedagogical competency. This scale comprises signs of expertise in the subject area, proficiency in pedagogical techniques, aptitude in learning management, competence in class management, and proficiency in student management. Based on the factor calculations for each variable in mobile learning, all the items for each indicator obtained a value of ≥ 0.5, indicating that all instrument items are considered legitimate. Instrument reliability testing employs composite reliability evaluations for both indicators and constructs. The analysis of the teacher pedagogical competency variable instrument indicates that each item's calculation results demonstrate a composite reliability exceeding 0.7. This number indicates that the level of the teacher's pedagogical competency variable is rather high.

The model created by Barling & Cooper (27) is used to measure the variables of teacher professional ability. This scale comprises indications that assess one's knowledge of learning and human behaviour, mastery of the subject of study being coached, appropriate attitudes towards oneself, school, colleagues, and the topic of study being coached, as well as proficiency in teaching approaches. Based on the factor calculations for each variable in mobile learning, all the items for each indicator obtained a value of ≥ 0.5, indicating that all instrument items are considered legitimate. Instrument reliability testing employs composite reliability evaluations for both indicators and constructs. The calculation findings for each item of the teacher professional competency variable instrument indicate a composite reliability greater than 0.7. This rating indicates that the level of teacher professional expertise is relatively high. The religious character variable was assessed using a model devised by Glock & Stark (28). This measure comprises indicators of belief, worship, appreciation, knowledge, and practice. Based on the factor calculations for each variable in

mobile learning, all the items for each indicator obtained a value of ≥ 0.5, indicating that all instrument items are considered legitimate. Instrument reliability testing employs composite reliability evaluations for both indicators and constructs. The calculation findings for each item of the religious character variable instrument indicate a composite reliability more than 0.7. This score indicates that the level of religiosity in the character variable is relatively high.

2.4 Data Analysis

This data study utilises SmartPLS 3, a software that enables researchers to directly examine a sequence of associations. Data processing is conducted with Partial Least Squares Structural Equation Modelling (PLS-SEM) with the assistance of SmartPLS 3. The outer model and inner model tests are performed within the SmartPLS 3 software. PLS-SEM has several advantages, including the ability to calculate both formative and reflecting indicators through linear combinations. The research used the statistical method of multiple regression analysis for data analysis.

2.5 Theoretic and Hypothetic Model

The image will illustrate the conceptual framework employed in this research. The research posits the following notion.

1. H1, Pedagogical competence (X1) has a positive and significant effect on religious character (Y)
2. H2, Professional competence (X2) has a positive and significant effect on religious character (Y)
3. H3, Mobile learning (Z) has a positive and significant effect on religious character (Y)
4. H4, Mobile learning (Z) is significant as a moderator of the relationship between pedagogical competence (X1) and religious character (Y)
5. H5, Mobile learning (Z) is significant as a moderator of the relationship between teacher professional competence (X2) and religious character (Y)

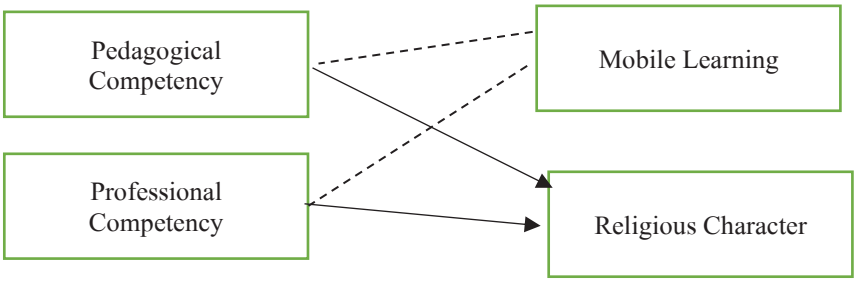

Figure 1. Theoretical Framework

3 Results and Discussion

3.1 Results

3.1.1 Validity Test

The research validity test is determined by evaluating the values of convergent validity and discriminant validity. The instrument validity test relies on the factor loading value in the

measurement model. If the value of the indicator item factor is below 0.7, the indicator item must be excluded from the measurement model as it fails to meet the validity test criteria.

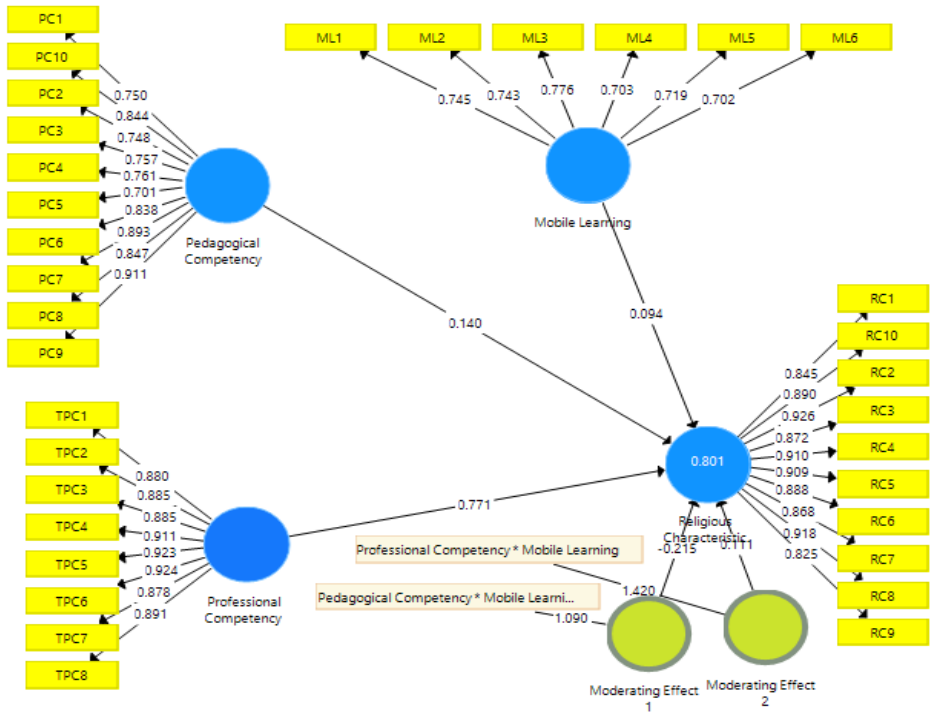

Figure 2. Outer Model Output Display

The graph in Figure 2 demonstrates that the factor loading value for each indicator is greater than 0.7. However, further examination is required to assess the validity by using the AVE (Average Variance Extracted) value.

Table 2. Factor Loading (FL) and Average Variance Extracted (AVE)

Construct	Items	FL	AVE
Pedagogical Competency	PC1	0.750	0.652
	PC2	0.748	
	PC3	0.757	
	PC4	0.761	
	PC5	0.701	
	PC6	0.838	
	PC7	0.893	
	PC8	0.847	
	PC9	0.911	
	PC10	0.750	
Professional Competency	TPC1	0.880	0.805
	TPC2	0.885	
	TPC3	0.885	
	TPC4	0.911	
	TPC5	0.923	
	TPC6	0.924	
	TPC7	0.878	
	TPC8	0.891	

Religious Character	RC1	0.845	0.785
	RC2	0.926	
	RC3	0.872	
	RC4	0.910	
	RC5	0.909	
	RC6	0.888	
	RC7	0.868	
	RC8	0.918	
	RC9	0.825	
	RC10	0.890	
Mobile Learning	ML1	0.745	0.535
	ML2	0.743	
	ML3	0.776	
	ML4	0.703	
	ML5	0.719	
	ML6	0.702	
Pedagogical Competency* Mobile Learning	Moderating Effect 1	1.090	1.000
Professional Competency* Mobile Learning	Moderating Effect 2	1.420	1.000

The table above displays the AVE values obtained from testing indicators for educational ability, professional competence, religious character, and mobile learning. These values meet the AVE criteria, which requires them to be above 0.5.

3.1.2 Discriminant Validity

The discriminant validity test can be observed by examining the cross-loading value while testing the construct. Using the discriminant validity test findings, we can compare the square root of AVE (Average Variance Extracted) to the correlation of each construct.

Tabel 3. Discriminant Validity

	Mobile Learning	Moderating Effect 1	Moderating Effect 2	Pedagogical Competency	Professional Competency	Religious Character
Mobile Learning	0.732					
Moderating Effect 1	-0.590	1.000				
Moderating Effect 2	-0.422	0.270	1.000			
Pedagogical Competency	0.600	-0.375	-0.099	0.808		
Professional Competency	0.380	-0.129	-0.360	0.256	0.897	
Religious Character	0.543	-0.399	-0.236	0.466	0.816	0.886

The table above demonstrates that the square root of the Average Variance Extracted (AVE) values (0.732, 1.000, 1.000, 0.888, 0.897, 0.886) is greater than the root value of each construct. This indicates that the AVE values are greater than 0.5 and the root of AVE is higher than the correlation value.

3.2 Reliability Test

Table 4. Cronbach's Alpha and Composite Reliability

	Cronbach's Alpha	Composite Reliability
Pedagogical Competency	0.940	0.949
Professional Competency	0.965	0.971
Mobile Learning	0.828	0.874
Religious Character	0.969	0.973
Moderating Effect 1	1.000	1.000
Moderating Effect 2	1.000	1.000

The Cronbach's Alpha and Composite Reliability output findings indicate that the construct or measurement variable utilised for study is deemed dependable. This is supported by the aforementioned statistics, which indicates that both the Cronbach's Alpha and Composite Reliability values above 0.7, indicating a satisfactory level of reliability.

3.2.1 Structural Model Test

Table 5. R-Square Value

	R-Square	R-Square Adjusted
Religious Character	0.801	0.791

According to the provided data, the R value of the Religious Character as an endogenous variable is 0.791. This indicates that the endogenous variable is strongly influenced by the exogenous variable, with a strength of 79.1%. However, the findings of this study indicate that 20.9% of the participants were influenced by additional factors that were considered in the research.

3.2.2 Hypothesis Test

When conducting hypothesis testing for structural model testing in SmartPLS 3, one can utilise bootstrapping to examine the initial sample number (β), T-Statistic, and P-Value.

Table 6. Hypothesis Testing Results

	Original Sample **(β)**	T-Statistics	P-Values
Pedagogical Competency → Religious Character	0.140	2.277	0.023
Professional Competency → Religious Character	0.771	9.011	0.000
Mobile Learning → Religious Character	0.094	1.328	0.185
Moderating Effect 1 → Religious Character	-0.215	2.471	0.014
Moderating Effect 2 → Religious Character	0.111	2.796	0.005

Hypothesis 1 posits that pedagogical competency exerts a favourable impact on the religious character variable. The sample demonstrates a positive direction with a value of 0.140, a t-statistic value of 2.277, and a p-value of 0.023, indicating a significant influence of exogenous variables on endogenous variables since the p-value is less than 0.05.

Hypothesis 2 posits that professional competency exerts a favourable impact on the religious character variable. This sample has a value of 0.771, a t-statistic value of 9.011, and a p-value of 0.000, which is less than 0.05. This implies a strong influence of exogenous variables on endogenous variables.

Hypothesis 3 posits that mobile learning does not have an impact on religious character. This is supported by the sample value of 0.094, the t-statistic of 1.328, and the p-value of 0.185, which is greater than the significance level of 0.05. Therefore, there is no significant relationship between the exogenous and endogenous variables.

Hypothesis 4 suggests that mobile learning, which moderates pedagogical competency, has a detrimental impact on religious character. This is supported by the sample value of -0.215, a t-statistic of 2.471, and a p-value of 0.014, which is less than the significance level of 0.05. These results indicate that mobile learning significantly affects religious character in a negative way through its impact on pedagogical competency.

Hypothesis 5 posits that mobile learning, as a moderator of professional competency, has a positive impact on religious character. This is supported by the sample value of 0.111, a t-statistic of 2.796, and a p-value of 0.005, which is below the significance level of 0.05. Thus, it can be concluded that mobile learning has a positive influence on religious character. There is a strong correlation between educational competency and religious character.

3.3 Discussion

3.3.1 The Impact of Mobile Learning on Enhancing Teacher Pedagogical Competence

After analysing and processing the data, it has been determined that there is a strong and detrimental impact of teacher competency on the religious character of students at SMA Muhammadiyah 5 and SMA Muhammadiyah 6 Yogyakarta. Nevertheless, if the impact of mobile learning on teacher competence is not regulated, teacher competency will positively affect the religious development of students at SMA Muhammadiyah 5 Yogyakarta and 6 Yogyakarta. Nevertheless, Nawi et al (29) found through their research that religious teachers exhibit a favourable disposition and willingness to integrate mobile technology, particularly in relation to utilising cell phones as an educational tool. Bolliger & Halupa (30) elucidate that teachers possess a comprehension of online learning and exhibit preparedness to assume a significant position in the execution of educational policies.

This research suggests that when evaluating the religious character of teachers, it is important to consider the individual teacher's ability to implement educational policies that assess religious character. The data collected in this study significantly impacts the teacher's pedagogical competence in teaching and influences policy decisions, particularly in evaluating religious character.

According to Avissar's research conducted in (31), there are notable disparities between men and women in their comprehension of technology, which exert a substantial impact. Indeed, the research conducted by Alieto et al (32) supports the promotion of gender equality in education as a means to address any potential disparities in teaching. This further demonstrates that the use of mobile learning in moderation negatively and significantly affects teachers' ability to assess students' religious character, depending on how the instructor responds and communicates. If not properly understood, it can have a detrimental impact. Hence, the assessment of students' religious character development is contingent upon the teacher's pedagogical competency and the specific guidelines for evaluating religious character.

3.3.2 The Impact of Mobile Learning on Enhancing Teacher Professional Competence

The data analysis conducted at SMA Muhammadiyah 5 Yogyakarta and 6 Yogyakarta reveals that mobile learning, acting as a moderator, has a large and good impact on the religious character of students, enhancing the professional competence of teachers. In a similar vein, the level of expertise that teachers possess in relation to students' religious character also has a beneficial impact on their religious character, even in the absence of moderation. Therefore, it can be concluded that professional competence significantly impacts students' religious character and also has an indirect effect on the assessment of their religious character.

The study conducted by Nagel et al (33) affirms that professional development can facilitate instructors' collaboration through the utilisation of mobile applications as a convenient tool. In their (34) study, Christensen and Knezek emphasise the importance of professional growth and highlight mobile learning as a viable and easy solution to overcome various challenges. This research provides compelling evidence that mobile learning necessitates professional competency. Professional competence can be readily applied to the process of learning. The presence of professional competence can also be associated with the assessment of religious character through the use of mobile learning, as mobile learning serves to address challenges.

3.3.3 The function of mobile learning as a moderating element in evaluating students' religious character.

The research findings indicate that mobile learning plays a moderating role in enhancing instructors' pedagogical and professional competence, specifically in relation to students' religious character. This contribution is particularly significant in the evaluation of religious character. The research conducted by Hameed et al. (35) asserts that mobile learning methods have a significant impact on the educational setting by offering timely instruction to pupils. Prieto et al (36) conducted research that highlights the significance of mobile devices in enhancing the learning process and their potential to foster innovation in education.

According to current research, mobile learning provides students with the opportunity to make necessary adjustments in their time and environment, enabling them to fulfil this important role. When assessing the religious nature of mobile learning, it is important to note that it can only serve as a means of moderation and cannot directly influence religious character. This is because there needs to be an intermediary, such as a teacher with pedagogical and professional competence, who can effectively utilise mobile learning as a practical and suitable tool for evaluating religious character.

3.3.4 Approach for Introducing Mobile Learning to Enhance the Efficacy of Religious Character Education

The utilisation of mobile learning has a significant and beneficial influence on enhancing the efficacy of religious character education. Nevertheless, the aforementioned research mostly emphasises moderation in mobile learning, but it is crucial to recognise that teachers play a major role in maximising religious character education. Teachers are required to possess specific qualifications, including pedagogical competence and professional competence. According to a study conducted by Kao et al (37), game-based mobile learning has been found to enhance students' motivation to actively engage in the learning process. Therefore, mobile learning must be efficient and play a significant role in enhancing students' religious character. K. Wang's (38) study suggests that mobile learning offers convenience, proximity, and is commonly utilised through educational applications. This research demonstrates that

in order to accomplish the success of religious character education, it is imperative to develop an application that utilises the teacher's professional expertise.

3.3.5 Examining the Ethical Considerations and Challenges of Utilising Mobile Learning to Evaluate Students' Religious Character

The usage of mobile learning in generating religious figures presents various obstacles due to the diverse approaches employed. Christensen & Knezek (39) conducted study on the problems of implementing mobile learning. They found that the main concerns arise from the teacher's approach to applying it with students. It is crucial for instructors to possess the pedagogical and professional competency abilities necessary to address this situation. If a teacher hinders your ability to confront difficult strategies, it will also impede the assessment of your religious character, as it does not align with the program's expectations. Consequently, the evaluation of education will hold more weight than the evaluation of religious character.

4 Conclusion

This study provides evidence that supports the significance of instructors' pedagogical and professional expertise in assessing students' religious attributes, while also emphasising the beneficial influence of including mobile-based learning as a moderating element. The findings of this study are noteworthy as they validate prior research that establishes a correlation between teacher proficiency and students' evaluations of religious attributes. Moreover, this study demonstrates that the utilisation of mobile-based learning technology might enhance the connection between teachers' pedagogical/professional expertise and their capacity to evaluate students' religious dimensions. The significance of these findings lies in the necessity of focusing on enhancing teacher proficiency in addressing intricate issues, such as assessing students' religious attributes, while also offering suitable technological resources to facilitate inclusive and enduring educational endeavours. This research offers useful insights for educational practitioners and researchers to enhance the calibre of instruction and evaluation in progressively diversified and rapidly changing learning environments.

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