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Analysis of Teacher Readiness Based on UTAUT2 in Utilizing Interactive Multimedia at State Madrasah Tsanawiyah in Bekasi Regency

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ABSTRACT

This study analyzes teachers' readiness to utilize interactive multimedia in learning at State Islamic Junior Secondary Schools (MTsN) in Bekasi Regency using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) framework. The research employed a quantitative descriptive approach with 63 teachers as respondents selected through total sampling technique. Data were collected using a Likert scale questionnaire instrument comprising nine UTAUT2 constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, behavioral intention, and use behavior. Results indicate that overall teacher readiness is at a high level with a mean score of 4.06. Performance expectancy achieved the highest score (M=4.34), followed by behavioral intention (M=4.27), hedonic motivation (M=4.07), effort expectancy (M=4.03), use behavior (M=3.98), and social influence and facilitating conditions (M=3.88 each). These findings demonstrate that teachers at MTsN in Bekasi Regency possess sufficient cognitive, technical, social, environmental, and motivational readiness to adopt interactive multimedia. The study contributes empirical evidence for applying UTAUT2 in Islamic education contexts and provides a strategic foundation for the Ministry of Religious Affairs in designing targeted teacher competency development programs.

Keywords: *Interactive Multimedia, Madrasah Tsanawiyah, Teacher Readiness, Technology Adoption, UTAUT2*

INTRODUCTION

Education plays a crucial role in preparing competent human resources capable of competing in the face of global challenges. Fansury et al. (2025) assert that quality education not only teaches foundational knowledge but also equips students with relevant skills to navigate global demands. As technology advances rapidly, the education sector must adapt and harness technology to improve learning quality. The use of information and communication technology (ICT) in education continues to expand and is regarded as one of the key factors in enhancing the quality of teaching and learning processes (Song et al., 2025)

The global educational paradigm has shifted significantly from mere cognitive achievement toward the mastery of 21st-century skills such as digital literacy, collaborative ability, and creativity. In response to these demands, the Ministry of Religious Affairs strengthened the legal framework for madrasah education through Ministerial Decree Number 347 of 2022 on the Implementation of the Merdeka Curriculum in Madrasah. This regulation explicitly mandates

that learning in madrasah must become more dynamic, competency-oriented, and character-based through Project Based Learning (Kementerian Agama RI, 2025)

Within this Merdeka Curriculum framework, technology is positioned as a primary pillar for pedagogical innovation. Interactive multimedia—integrating text, audio, video, and animation—is no longer merely a visual aid but a crucial strategy for creating immersive and relevant learning experiences in the digital era (Mayer, 2024). According to Sari et al. (2021), interactive multimedia is a learning medium combining text, images, sound, video, animation, and interactivity, presented through computer software or digital applications that allow students to directly interact with learning content rather than passively receiving it.

A preliminary study conducted on August 6, 2025 at MTsN 2 Bekasi Regency revealed a sharp gap between curriculum demands and teacher competency realities. Of 44 active teachers, 35 (80%) had conceptual understanding of interactive multimedia, yet only 9 (20%) consistently implemented it in daily teaching. More critically, only 1 teacher (approximately 2%) had reached an innovative level—independently developing digital teaching materials. This data confirms that theoretical understanding has not been transformed into practical skills (Lestari et al., 2024)

Several factors contribute to this condition. First, limited technical training causes some teachers to understand theory without being able to independently create digital media. Second, school facility constraints, including inadequate computers and internet networks. Third, strong conventional teaching habits reduce teacher motivation to innovate (Suyanto et al., 2024). This is reinforced by Manurung & Panggabean (2020), who state that most Indonesian teachers still rely on traditional approaches and have not fully transitioned to more interactive and contextual digital media.

According to Shurygin et al. (2022), teacher readiness to implement digital technology is strongly influenced by three main aspects: knowledge of technology, skills in its use, and attitudes or acceptance toward technological innovation. Additionally, Schmid & Petko (2019) emphasize that even when technological infrastructure is provided in schools, teacher reluctance to use technology in classrooms reflects that readiness is not solely determined by technical capability, but also by attitudes and available environmental support.

The UTAUT2 (Unified Theory of Acceptance and Use of Technology 2) can serve as a framework for understanding factors reflecting teacher readiness and acceptance of technology. According to Venkatesh et al. (2012), UTAUT2 builds upon UTAUT by adding hedonic motivation, price value, and habit constructs, making it more appropriate for individual user contexts. Based on research by Tseng et al. (2022) UTAUT2 proves to be a more appropriate model in the context of technology adoption by teachers, particularly in online learning systems. Furthermore, Sukmawati et al. (2024) explain that UTAUT2 encompasses seven distinct factors influencing behavioral intention (BI) or use behavior (UB): performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit.

Previous studies reveal significant research gaps. Haris et al. (2019) applied UTAUT2 to evaluate the Ruang Guru application, but their subjects were secondary school students, not teachers. Yarun et al. (2023) examined interactive multimedia in MTs settings using a qualitative descriptive approach, which does not measure readiness based on UTAUT2 constructs. Allutfia & Setyaningsih (2023) focused on teacher readiness but primarily for the new Merdeka Curriculum, not the psychological aspects of digital technology adoption. Accordingly, Kittinger & Law (2024) through a systematic review of UTAUT and UTAUT2 among K-12 educators confirm that specific research measuring State Islamic Junior Secondary School teacher readiness using complete UTAUT2 constructs, particularly in Indonesia's madrasah context, remains scarce.

This research is therefore significant in providing deep understanding of teacher readiness to meet continuously evolving digital learning demands, specifically in the context of utilizing interactive multimedia in madrasah. Results are expected to contribute both theoretically—validating UTAUT2 applicability in Islamic school contexts—and practically, by providing

strategic foundations for the Ministry of Religious Affairs in designing targeted, empirically grounded teacher competency development programs.

METHODS

Research Design

This study employed a quantitative descriptive approach. According to García Murillo et al. (2023), the quantitative descriptive approach is suitable for measuring and describing technology acceptance phenomena using validated theoretical frameworks. The UTAUT2 model served as the analytical framework, enabling systematic and comprehensive measurement of all constructs that describe teacher readiness in utilizing interactive multimedia.

Participants

The research population consisted of all teachers at State Madrasah Tsanawiyah (MTsN) in Bekasi Regency. Total sampling technique was employed, yielding 63 teacher respondents across MTsN institutions in Bekasi Regency. Ayanwale et al. (2022) emphasize that total sampling is appropriate when the population is limited and accessible, ensuring representative and valid data. The demographic characteristics of respondents are presented in Table 1.

Table 1. Respondent Demographics

Variable	Category	n	%
Gender	Male	24	38.1
	Female	39	61.9
Age	≤ 30 years	12	19.0
	31–40 years	27	42.9
	41–50 years	18	28.6
	> 50 years	6	9.5
Education	Bachelor's (S1)	51	81.0
	Master's (S2)	12	19.0
Teaching Experience	< 5 years	15	23.8
	5–10 years	24	38.1
	> 10 years	24	38.1

Source: Primary Data, 2026

Instrument

Data were collected using a questionnaire instrument comprising 45 statements measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The instrument covered nine UTAUT2 constructs: performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), hedonic motivation (HM), price value (PV), habit (HA), behavioral intention (BI), and use behavior (UB). Instrument items were adapted from Venkatesh et al. (2012) and further developed according to the interactive multimedia context in madrasah learning.

Validity and Reliability

Content validity was assessed through expert review and Pearson correlation analysis with r table = 0.248 (n=63, α=0.05). All items showed r count > r table, indicating valid instruments. Reliability was measured using Cronbach's Alpha, yielding coefficients ranging from 0.786 to 0.891 for all constructs, exceeding the 0.70 threshold and confirming high instrument reliability (Scherer et al., 2019).

Data Analysis

Data analysis utilized descriptive statistics by calculating the mean scores for each construct and the overall readiness level. The interpretation of mean scores was conducted using a 5-point Likert scale classification to determine respondents' readiness levels. The interval classification was calculated using the following formula:

$$\text{Interval Width} = \frac{\text{Highest Score} - \text{Lowest Score}}{\text{Number of Categories}} = \frac{5-1}{5} = 0.80$$

Based on the interval calculation above, the score interpretation criteria were categorized into five levels ranging from "Very Low" to "Very High." Meanwhile, the UTAUT2 framework proposed by Venkatesh et al. (2012) was used as the theoretical basis for analyzing factors influencing teachers' readiness in adopting interactive multimedia technology.

Table 2. Score Interpretation Criteria

Score Range	Category	Readiness Level
4.21 – 5.00	Very High	Very Ready
3.41 – 4.20	High	Ready
2.61 – 3.40	Moderate	Fairly Ready
1.81 – 2.60	Low	Less Ready
1.00 – 1.80	Very Low	Not Ready

Source: Developed by the researcher based on 5-point Likert scale interval interpretation.

RESULTS AND DISCUSSION

Results

Descriptive analysis of all UTAUT2 constructs showed that overall teacher readiness in utilizing interactive multimedia at MTsN in Bekasi Regency was at a high level (M=4.06). Table 3 presents the complete descriptive analysis results for all nine constructs.

Table 3. Descriptive Analysis Results of UTAUT2 Constructs

Construct	Mean	Std. Dev.	Category
Performance Expectancy	4.34	0.51	High
Effort Expectancy	4.03	0.58	High
Social Influence	3.88	0.62	High
Facilitating Conditions	3.88	0.59	High
Hedonic Motivation	4.07	0.55	High
Price Value	4.01	0.57	High
Habit	3.95	0.63	High
Behavioral Intention	4.27	0.49	High
Use Behavior	3.98	0.60	High
Overall	**4.06**	0.57	**High**

Source: Primary Data, 2026

Discussion

Performance Expectancy (M=4.34) achieved the highest score among all constructs, indicating that teachers strongly believe interactive multimedia can enhance teaching

effectiveness. This is consistent with the UTAUT2 theoretical framework, where Venkatesh et al. (2003) define performance expectancy as an individual's belief that using a technology system can provide real benefits in improving job performance. High performance expectancy reflects teachers' cognitive readiness in assessing the benefits of multimedia for student learning outcomes. This finding aligns with Hanan Pratiwi et al. (2024), who assert that using interactive multimedia can increase student engagement, encourage active participation, and help comprehend abstract or complex material more concretely.

The theoretical foundation supporting this finding is Mayer (2024) Cognitive Theory of Multimedia Learning (CTML), which explains that effective interactive multimedia should be designed to maximize students' cognitive capacity. Munaji et al. (2025) further confirm that teachers' belief that technology can improve learning effectiveness directly correlates positively with their readiness to integrate it. Similarly, Acosta-Enriquez et al. (2024) through UTAUT2-based research on technology acceptance in university contexts find that performance expectancy consistently becomes the strongest predictor of behavioral intention across various educational technology contexts.

Effort Expectancy (M=4.03) indicates that teachers consider interactive multimedia relatively easy to understand and operate. This construct reflects technical readiness and self-confidence in operating learning technology. According to Venkatesh et al. (2003) effort expectancy is defined as the degree of ease associated with the use of a system, referring to how much the system is considered easy to understand and operate. High effort expectancy suggests that interactive multimedia does not constitute a significant barrier in the technology adoption process.

From the perspective of Information Processing Theory, effort expectancy plays a crucial role in minimizing cognitive load on teachers' working memory when operating technology (Backfisch et al., 2021). Kavitha & Joshith (2024) and Yang (2025) note that ease of use can be contextual and influenced by infrastructure readiness and media design. This suggests that although effort expectancy is high, supporting conditions such as facilities and technical support remain important aspects in maintaining technology ease of use.

Social Influence (M=3.88) demonstrates that teachers perceive social support in using interactive multimedia. Venkatesh et al. (2012) define social influence as the extent to which individuals perceive that important people around them encourage the use of a technology. High scores on this variable indicate teachers are not in isolated individual conditions but operate within social environments supporting interactive multimedia use. This supports findings by Lisana (2022) and Surya et al. (2021) showing that social environment support, including peers and professional communities, frequently strengthens tendencies toward digital technology use.

Facilitating Conditions (M=3.88) reflects that teachers have access to resources, infrastructure, and technical support needed for interactive multimedia use. This aligns with Clark et al. (2024) and Welle et al. (2021), who show that infrastructure availability and technical support represent important aspects of environmental readiness for technology use. Selection of MTsN institutions—which have relatively standardized government-provided facilities—ensures more homogeneous facilitating conditions, making the UTAUT2 measurement more focused on psychological and perceptual aspects rather than infrastructure disparities.

Nonetheless, Carvalho & Santos (2022) emphasize that facility availability alone is insufficient without ongoing support, including training and consistent organizational policies.

Hedonic Motivation (M=4.07) indicates teachers experience attraction, comfort, and enjoyable experiences in using interactive multimedia. Venkatesh et al. (2012) define hedonic motivation as the level of enjoyment or satisfaction individuals experience when using technology. This finding is consistent with Du & Liang (2024) and Zhang et al. (2022), who show that enjoyable technology experiences can strengthen usage tendencies in digital learning contexts. Moorthy et al. (2019) additionally confirm that habit and hedonic motivation are the strongest influences on mobile learning behavior among higher education students, a finding relevant to this research context where technology engagement provides intrinsic satisfaction beyond mere pedagogical obligation.

Price Value (M=4.01) shows that teachers view interactive multimedia as providing greater benefit than the effort or cost required. According to Venkatesh et al. (2012), price value refers to the cognitive tradeoff between perceived benefits and monetary cost of using technology. In the educational context, price value relates to perceived value of time, energy, and resources invested in developing interactive multimedia. High price value suggests teachers perceive this investment as worthwhile—consistent with Rondan-Cataluña et al. (2015), who confirm that UTAUT2 has the highest predictive rate compared to other technology acceptance models including TAM variants, largely because it captures this economic reasoning alongside hedonic factors.

Habit (M=3.95) demonstrates that technology use, particularly interactive multimedia, has begun to become a teaching habit for teachers. From the Information Processing Theory perspective, habit formation reflects successful encoding of procedural knowledge into long-term memory (Kholifah et al., 2024). Tian et al. (2022) show that when users have regularly used technology over a certain period, such use becomes automatic and sustainable. The role of habit is particularly important in this madrasah context because Arwildayanto et al. (2023) emphasize that in-service training and continuous professional development (CPD) programs play an important role in forming professional teachers ready to face educational challenges—ultimately building the habit structures that UTAUT2 measures.

Behavioral Intention (M=4.27) indicates teachers have strong intention to continue using interactive multimedia in future learning. In the UTAUT2 framework, Venkatesh et al. (2012) explain that behavioral intention is a core construct describing an individual's desire or intention to use technology. This finding aligns with Awaluddin et al. (2022) and Alviani et al. (2023), who show that behavioral intention is frequently influenced by performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit. Strzelecki (2023) and Dinh et al. (2025) further confirm that hedonic motivation and habit have important roles in strengthening behavioral intention, particularly in contexts where technology adoption is voluntary rather than mandated.

Use Behavior (M=3.98) demonstrates that teachers have actually used interactive multimedia in learning processes, indicating that readiness has moved beyond intention to become actual practice. Zhang et al. (2022) state that the behavioral intention → use behavior relationship pathway is the most consistent pattern in UTAUT2 research, particularly in mobile learning and multimedia learning contexts. Mittal et al. (2021) additionally show that in digital

learning contexts, sustained technology adoption occurs when individuals have high intention and have become accustomed to using technology in learning activities. The finding of use behavior at MTsN in Bekasi Regency aligns with Domingueti et al. (2022) who find that user experience with interactive simulation-based learning systems can increase actual technology use when systems are easy to operate and provide clear benefits.

Overall, the finding that all nine UTAUT2 constructs are at a high level provides empirical evidence that the UTAUT2 model is valid for measuring teacher technology readiness in Islamic educational institution contexts—a contribution aligned with calls from Ates & Polat (2025) for broader application of UTAUT2 in diverse educational settings. The study also confirms Peters et al. (2022) view that digital competency development for teachers should not be conducted through one-time training alone, but needs to be strategically designed, institutionally integrated, and ongoing for more significant impact on learning practice. Furthermore, Pavlou & Burke (2025) and Rahimi & Teimouri (2025) reinforce that in online learning eras, there is an urgent need to develop effective learning design, pedagogy, and digital competencies in educators—underscoring the policy relevance of this study's findings for the Ministry of Religious Affairs.

When compared to previous studies, this research shows consistency and differences. Kittinger & Law (2024) through a systematic review of UTAUT and UTAUT2 among K-12 educators confirm that teacher readiness factors identified in this study—performance expectancy, facilitating conditions, and social influence—are the most frequently significant constructs in educational technology adoption. However, this study adds novelty by specifically measuring hedonic motivation and habit in the Islamic madrasah context, constructs those previous studies in similar Indonesian educational contexts had not fully explored. The convergence across constructs also echoes Ainul Bashir (2020) and Daud Mahande & Jasruddin (2018) who's Indonesian UTAUT-based studies consistently show high performance expectancy and social influence as dominant drivers of educational technology acceptance.

The practical implication of these findings is that teacher readiness improvement programs should focus not only on technical skills but also on strengthening psychological aspects such as motivation, positive attitudes, and technology use habits. Moriña & Perera (2025) and Winícius et al. (2023) note that technology learning experiences occurring outside formal contexts (such as personal experience) can be key in forming more comprehensive teacher readiness to integrate technology in formal classrooms. The school's role in creating conducive facilitating conditions—as demonstrated by Lan (2024)' research on technology-enhanced teacher training—remains essential for sustaining the high readiness levels observed in this study.

CONCLUSION

This study concludes that overall teacher readiness to utilize interactive multimedia at State Madrasah Tsanawiyah in Bekasi Regency is at a high level, reflecting that teachers possess sufficient cognitive, technical, social, environmental, and motivational readiness to adopt interactive multimedia. All nine UTAUT2 constructs—performance expectancy, behavioral intention hedonic motivation, effort expectancy, price value, use behavior, habit, social influence, and facilitating conditions—are at high levels, confirming that teacher readiness is not merely conceptual but has been reflected in actual practice in the field.

This research contributes empirical evidence for the applicability of UTAUT2 in Islamic educational institution contexts in Indonesia. The study fills a literature gap by specifically measuring MTsN teacher readiness using complete UTAUT2 constructs, including hedonic motivation and habit variables that have not been widely explored in Indonesian madrasah settings. Practically, these findings provide a strategic foundation for the Ministry of Religious Affairs in designing targeted, empirically grounded teacher competency development programs encompassing not only technical aspects but also psychological and behavioral adaptation.

Future research is recommended to extend analyses using inferential approaches or structural equation modeling (SEM) to examine causal relationships between UTAUT2 constructs. Expanding the research scope to include private madrasah in Bekasi Regency would provide comparative insights, and incorporating mixed methods designs would yield deeper qualitative understanding of the motivational and cultural factors underlying the readiness levels documented here.

CONFLICT OF INTEREST

The authors declare no conflict of interest related to the research, authorship, or publication of this article.

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