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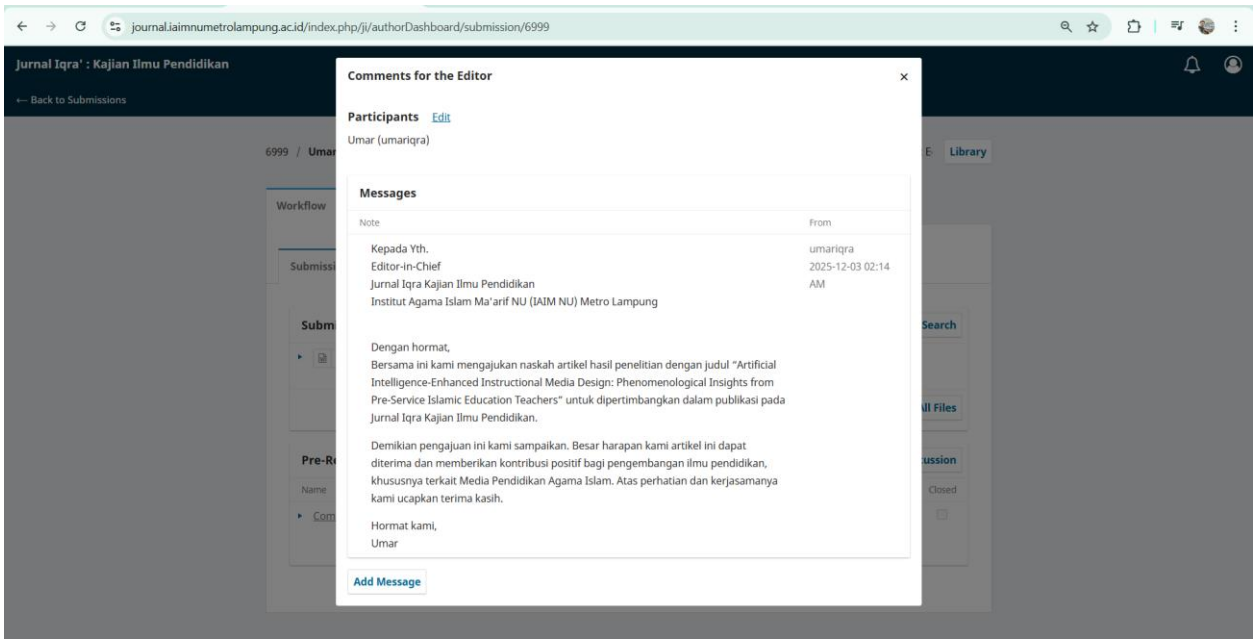

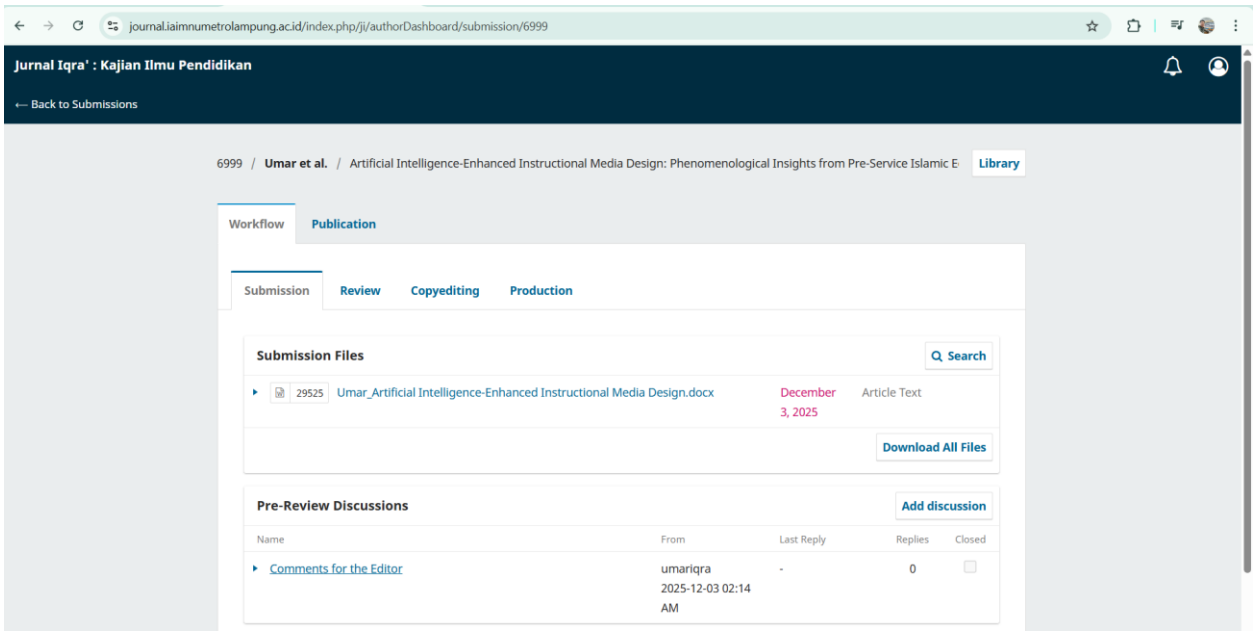

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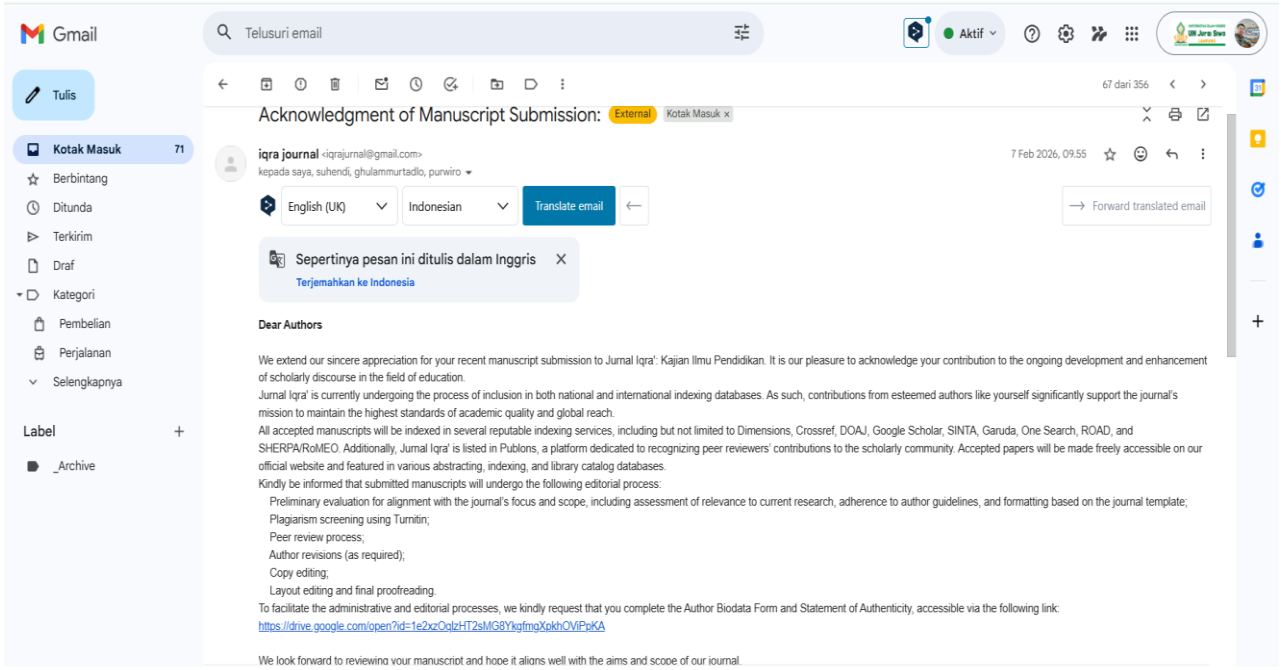

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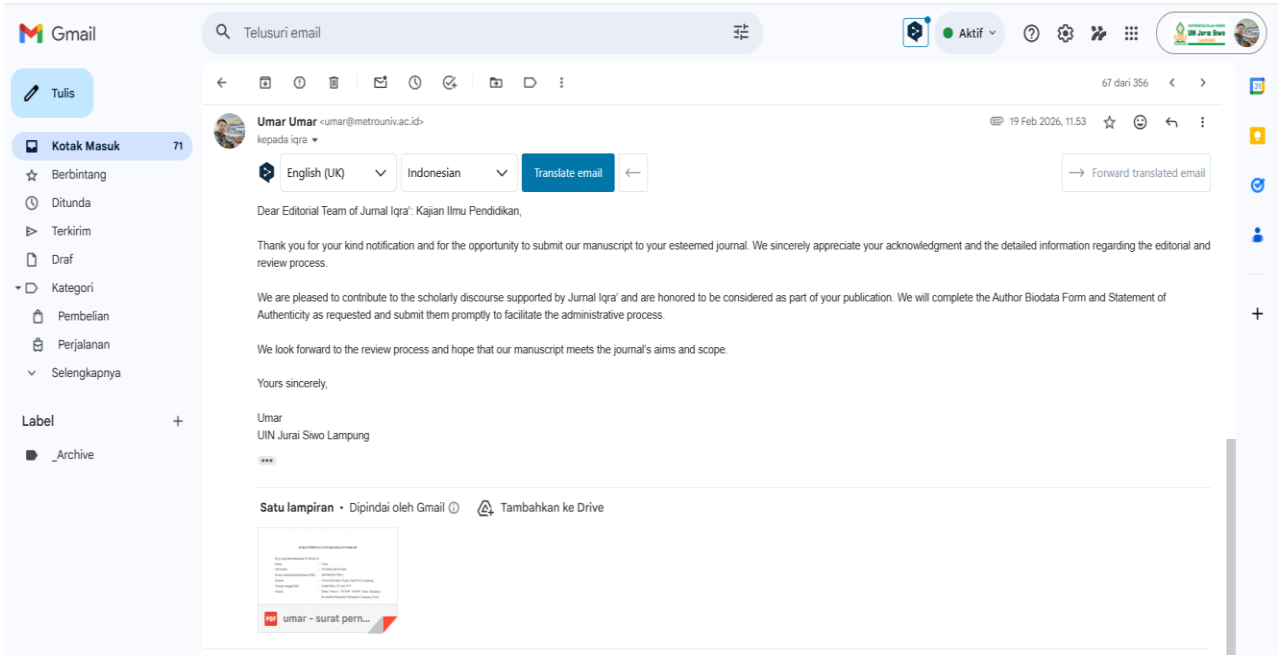

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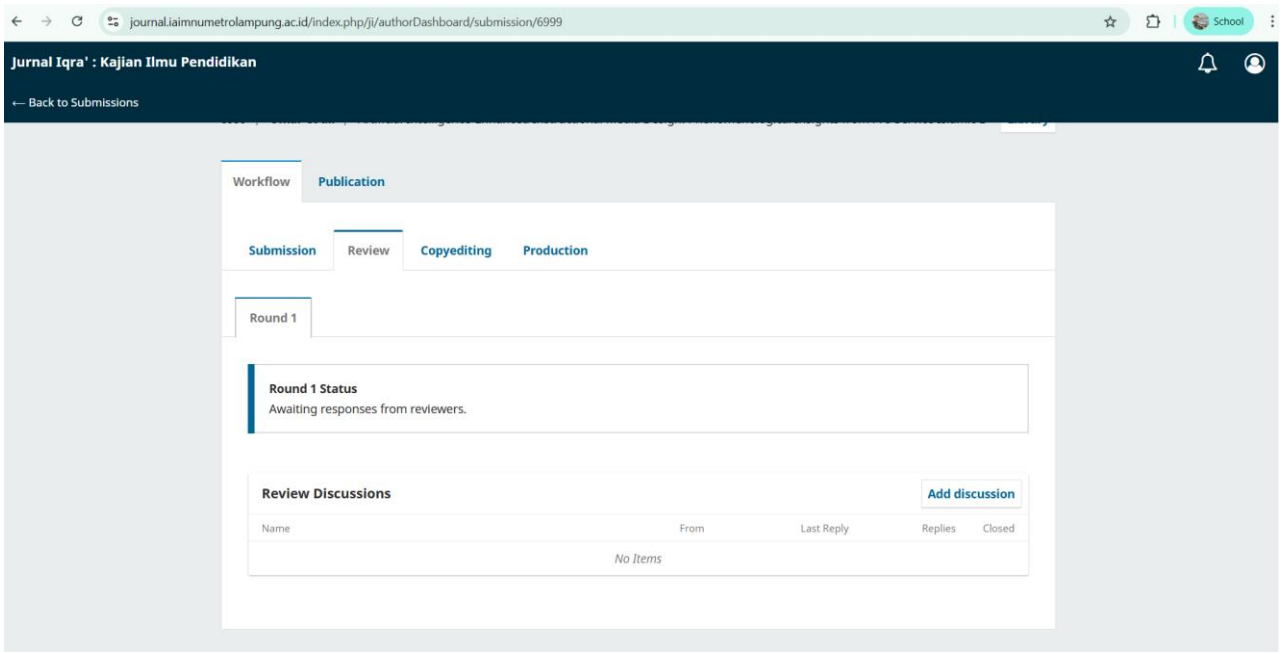

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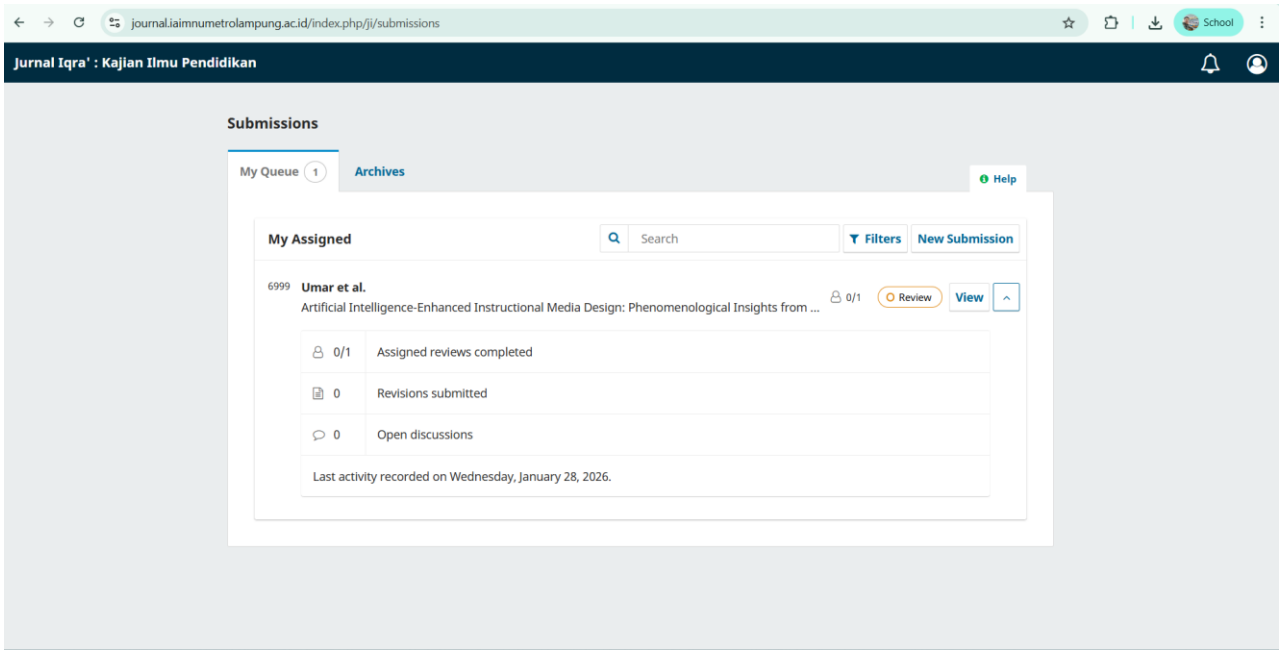

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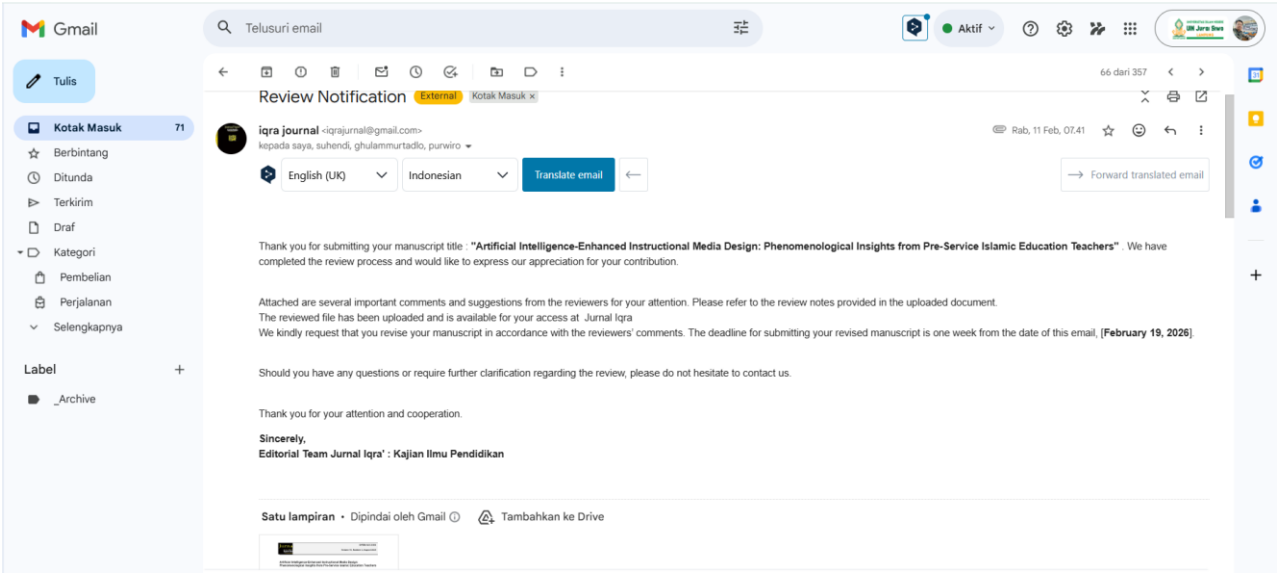

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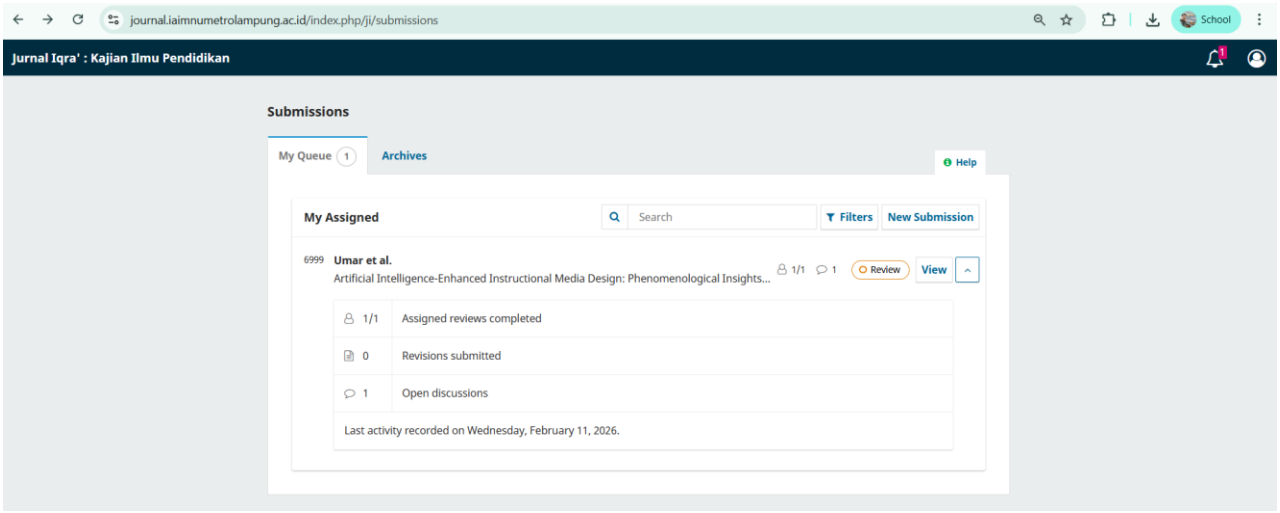

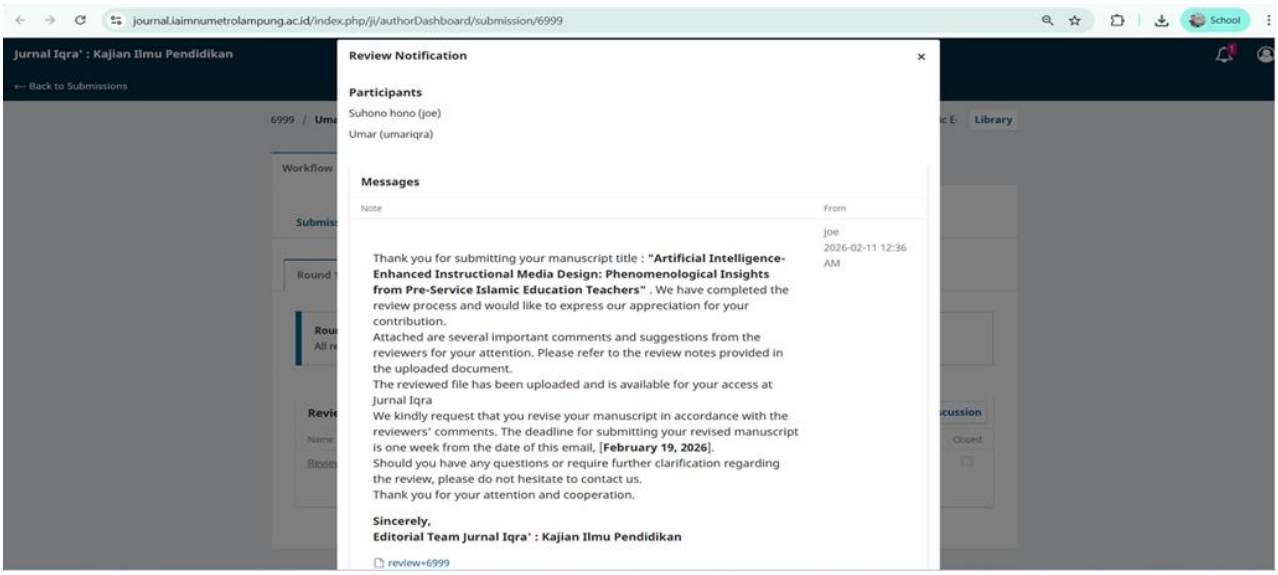

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Artificial Intelligence-Enhanced Instructional Media Design: Phenomenological Insights from Pre-Service Islamic Education Teachers

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ABSTRACT

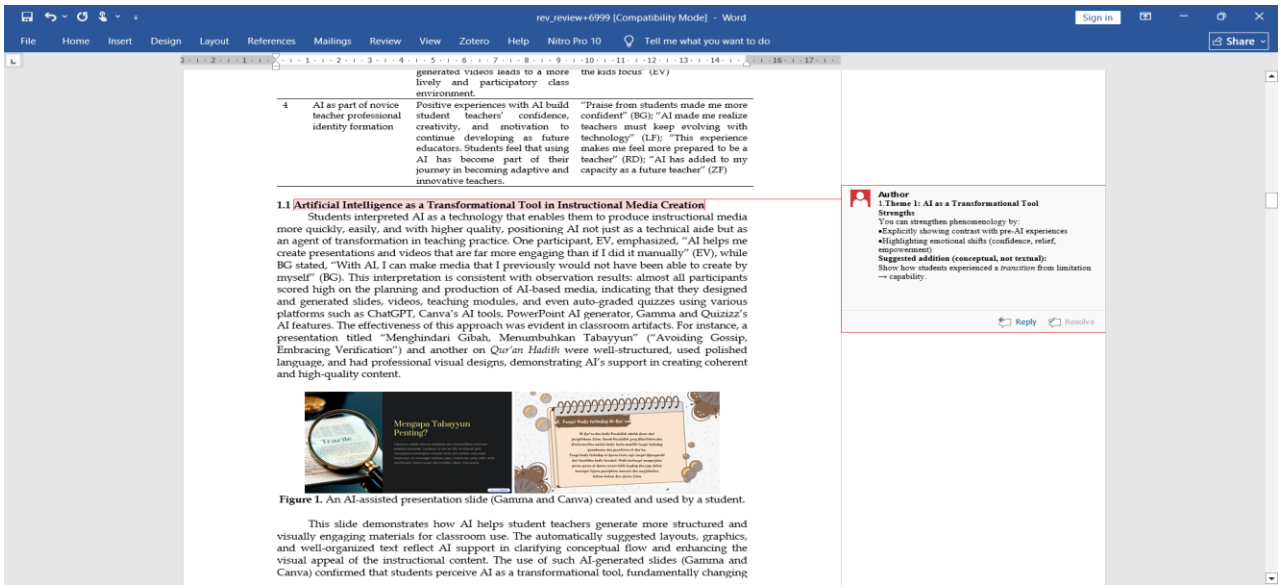
This study explores how pre-service Islamic Education teachers experience and interpret the use of Artificial Intelligence (AI) in designing instructional media during a teaching practicum program. Moving beyond performance-based evaluations of AI integration, the study conceptualizes AI as a socio-technical system that mediates pedagogical reasoning and professional identity formation. Using a qualitative phenomenological approach, data were collected through in-depth interviews, classroom observations, and document analysis involving eight undergraduate students. The data were analyzed using Interpretative Phenomenological Analysis (IPA) to uncover the lived meanings of AI use in instructional practice. The findings reveal four interconnected themes: AI as a transformational tool in media creation, AI as a pedagogical support, AI as a catalyst for reshaping classroom dynamics, and AI as a mediating presence in the becoming of novice teacher identity. Participants experienced a transition from perceived limitation to expanded capability, accompanied by increased confidence and reflexivity. At the same time, AI integration generated ethical and pedagogical tensions requiring critical judgment and contextual sensitivity. These findings suggest that AI in teacher education functions not merely as a technical enhancer, but as an identity-mediating presence that reshapes authority, engagement, and professional self-understanding within value-laden educational contexts. The study contributes theoretically by extending AI-in-education discourse toward phenomenological inquiry and value-sensitive technology integration.

Keywords: artificial intelligence; instructional media; phenomenology; socio-technical; novice teachers

Author
1 Opening Paragraph: Contextualization of AI in Educatio
Weaknesses
•The paragraph is descriptive rather than argumentative.
•AI is presented as universally beneficial, with limited critical tension.
•No explicit connection yet to instructional media design.
Recommendations
•Add conceptual framing (e.g., AI as socio-technical system, not neutral tool).
•Introduce implicit tension: while AI promises personalization, it also reshapes teacher agency and professional identity.
Suggested reviewer-style comment:
The opening paragraph would benefit from a more critical stance by positioning AI not only as an enabler of adaptive learning but also as a technology that reconfigures pedagogical authority and teacher identity. This will strengthen the conceptual depth expected in high-impact journals.

2.Instructional Media and Learning Theory Paragraph;
Weaknesses
•Theoretical references are not yet integrated with AI.
•Mayer's theory is mentioned, but not positioned as a lens or limitation.
Recommendations
•Explicitly argue whether AI extends, challenges, or operationalizes multimedia learning theory.
•Clarify why AI-based media design requires new forms of pedagogical reasoning.
Reviewer-style comment:
The inclusion of multimedia learning theory is appropriate; however, the authors are encouraged to clarify how AI-enhanced media design aligns with, extends, or problematizes existing cognitive theories of multimedia learning.

3. Literature Gap and Research Positioning (Critical Section) Literature Gap and Research Positioning (Critical Section)



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		generated videos leads to a more lively and participatory class environment.	the kids focus" (EV)
4	AI as part of novice teacher professional identity formation	Positive experiences with AI build student teachers' confidence, creativity, and motivation to continue developing as future educators. Students feel that using AI has become part of their journey in becoming adaptive and innovative teachers.	"Praise from students made me more confident" (BG); "AI made me realize teachers must keep evolving with technology" (LF); "This experience makes me feel more prepared to be a teacher" (RD); "AI has added to my capacity as a future teacher" (ZF)

1.1 Artificial Intelligence as a Transformational Tool in Instructional Media Creation

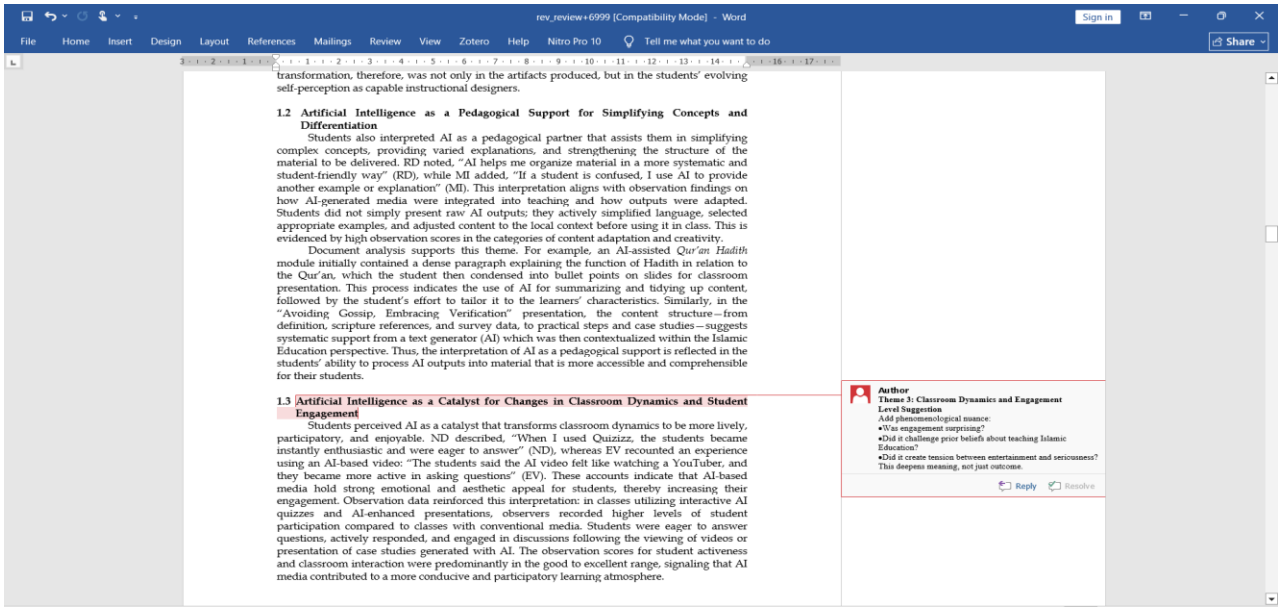
Students interpreted AI as a technology that enables them to produce instructional media more quickly, easily, and with higher quality, positioning AI not just as a technical aide but as an agent of transformation in teaching practice. One participant, EV, emphasized, "AI helps me create presentations and videos that are far more engaging than if I did it manually" (EV), while BG stated, "With AI, I can make media that I previously would not have been able to create by myself" (BG). This interpretation is consistent with observation results: almost all participants scored high on the planning and production of AI-based media, indicating that they designed and generated slides, videos, teaching modules, and even auto-graded quizzes using various platforms such as ChatGPT, Canva's AI tools, PowerPoint AI generator, Gamma and Quizizz's AI features. The effectiveness of this approach was evident in classroom artifacts. For instance, a presentation titled "Menghindari Gibah, Menumbuhkan Tabayyun" ("Avoiding Gossip, Embracing Verification") and another on *Qur'an Hadith* were well-structured, used polished language, and had professional visual designs, demonstrating AI's support in creating coherent and high-quality content.

Figure 1. An AI-assisted presentation slide (Gamma and Canva) created and used by a student.

This slide demonstrates how AI helps student teachers generate more structured and visually engaging materials for classroom use. The automatically suggested layouts, graphics, and well-organized text reflect AI support in clarifying conceptual flow and enhancing the visual appeal of the instructional content. The use of such AI-generated slides (Gamma and Canva) confirmed that students perceive AI as a transformational tool, fundamentally changing

Author
1 Theme 1: AI as a Transformational Tool
Strengths
You can strengthen phenomenology by:
•Explicitly showing contrast with pre-AI experiences
•Highlighting emotional shifts (confidence, relief, empowerment)
Suggested addition (conceptual, not textual):
Show how students experienced a *transition* from limitation → capability.

Reply Resolve



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transformation, therefore, was not only in the artifacts produced, but in the students' evolving self-perception as capable instructional designers.

1.2 Artificial Intelligence as a Pedagogical Support for Simplifying Concepts and Differentiation

Students also interpreted AI as a pedagogical partner that assists them in simplifying complex concepts, providing varied explanations, and strengthening the structure of the material to be delivered. RD noted, "AI helps me organize material in a more systematic and student-friendly way" (RD), while MI added, "If a student is confused, I use AI to provide another example or explanation" (MI). This interpretation aligns with observation findings on how AI-generated media were integrated into teaching and how outputs were adapted. Students did not simply present raw AI outputs; they actively simplified language, selected appropriate examples, and adjusted content to the local context before using it in class. This is evidenced by high observation scores in the categories of content adaptation and creativity.

Document analysis supports this theme. For example, an AI-assisted *Qur'an Hadith* module initially contained a dense paragraph explaining the function of Hadith in relation to the Qur'an, which the student then condensed into bullet points on slides for classroom presentation. This process indicates the use of AI for summarizing and tidying up content, followed by the student's effort to tailor it to the learners' characteristics. Similarly, in the "Avoiding Gossip, Embracing Verification" presentation, the content structure—from definition, scripture references, and survey data, to practical steps and case studies—suggests systematic support from a text generator (AI) which was then contextualized within the Islamic Education perspective. Thus, the interpretation of AI as a pedagogical support is reflected in the students' ability to process AI outputs into material that is more accessible and comprehensible for their students.

1.3 Artificial Intelligence as a Catalyst for Changes in Classroom Dynamics and Student Engagement

Students perceived AI as a catalyst that transforms classroom dynamics to be more lively, participatory, and enjoyable. ND described, "When I used Quizizz, the students became instantly enthusiastic and were eager to answer" (ND), whereas EV recounted an experience using an AI-based video: "The students said the AI video felt like watching a YouTuber, and they became more active in asking questions" (EV). These accounts indicate that AI-based media hold strong emotional and aesthetic appeal for students, thereby increasing their engagement. Observation data reinforced this interpretation: in classes utilizing interactive AI quizzes and AI-enhanced presentations, observers recorded higher levels of student participation compared to classes with conventional media. Students were eager to answer questions, actively responded, and engaged in discussions following the viewing of videos or presentation of case studies generated with AI. The observation scores for student activeness and classroom interaction were predominantly in the good to excellent range, signaling that AI media contributed to a more conducive and participatory learning atmosphere.

Author
Theme 3: Classroom Dynamics and Engagement Level Suggestion
Add phenomenological nuance:
•Was engagement surprising?
•Did it challenge prior beliefs about teaching Islamic Education?
•Did it create tension between entertainment and seriousness? This deepens meaning, not just outcome.

Reply Resolve

The module content illustrates how AI helped summarize theory, simplify concepts, and suggest varied learning activities. These outputs indicate AI's role in condensing material, providing alternative explanations, and organizing components of the lesson in alignment with the *Kurikulum Merdeka* (Indonesian national curriculum) format. The overall evidence shows that students used AI to strengthen the conceptual and structural aspects of their lesson planning, making their teaching process more planned, focused, and effective. AI not only eased the preparation of content but also provided an initial framework which the students then refined and enriched with pedagogical considerations.

1.4 Artificial Intelligence as an Element in Novice Teacher Professional Identity Formation

Students felt that their experience using AI became an integral part of forming their professional identity as future teachers in the digital era. BG mentioned, "Praise from students

Author
Theme 4: Professional Identity Formation (Most Original Contribution)
Major Strength
•Identity as becoming, not possession
•AI as a mirror through which students see themselves as teachers
Reviewer-style comment:
The theme of professional identity formation is a major strength and represents a clear contribution. The authors may strengthen it further by framing identity as a dynamic process of becoming mediated by AI use.
Reply Resolve

for the media I created with AI made me more confident in teaching" (BG). Likewise, LF observed that using AI pushed her to keep learning and adapting; "AI made me realize that as a teacher I must continuously develop by keeping up with technology" (LF). This meaning is reflected in high observation scores on the ethics and responsibility aspects of AI use, where students showed mindfulness in selecting content, avoiding plagiarism, and citing sources when using AI-generated material. Furthermore, on the reflection aspect, students began to evaluate the effectiveness of the AI media they used and plan improvements for subsequent lessons, indicating a developing habit of reflective practice.

Analysis of teaching modules, presentations, and quizzes provides additional evidence that students were not merely using AI in a technical sense, but were combining technological skills with considerations of Islamic educational values, student needs, and curriculum demands. For instance, their lesson plans were comprehensive; their choice of illustrations aligned with Islamic ethics; and their interactive quiz designs reflected an effort to be engaging yet respectful of the content's religious context. These efforts suggest that the students were

spiritual, cognitive, and technological dimensions. The AI-based presentations and quizzes also reflected the students' willingness to explore new formats that resonate with the digital generation while still maintaining academic and religious rigor in the content. These findings suggest that AI acted as a *catalyst* in the process of forming the student teachers' professional identities. Through repeated interactions with technology, student responses, and self-reflection, the participants built the conviction that teachers in the digital age need to be adaptive, creative, and responsible in leveraging AI for educational purposes.

In summary, the integration of AI in these student teachers' practice provided notable contributions: it improved the coherence and effectiveness of their instruction, heightened student engagement and motivation, and contributed to their development as confident, digitally literate, and reflective educators. These contributions were evidenced not only in the students' own perceptions and narratives but also through concrete observations of classroom behavior and the quality of instructional materials produced.

Discussion

The student teachers' interpretations of using Artificial Intelligence (AI) in designing instructional media indicate that this technology is understood not merely as a technical aid, but as an integral component shaping how future teachers design, develop, and reflect on learning. Recent literature affirms that AI functions as a pedagogical agent capable of creating more dynamic, adaptive, and collaborative learning environments (Alvarado, 2023; Asrifan et al., 2024). The experiences of the participants in this study revealed four forms of meaning—AI as a transformational tool, a pedagogical support, a catalyst for class dynamics, and a shaper of professional identity—that align with global trends in AI development in education, as noted by Thalji and Alkhasawneh (2025) and Chere and Wayi-Mgwebi (2024).

First, the notion of AI as a transformational tool in instructional media creation is strongly supported by prior research emphasizing AI's capability to generate creative, personalized, and high-quality content through generative tools like ChatGPT and AI-based design platforms (Mavundla et al., 2025; Rosario & Ciastellardi, 2024). In this study, students harnessed AI to develop slides, modules, avatar-led videos, and interactive quizzes, echoing the idea that AI extends teachers' pedagogical capacity and creativity via media automation (Asrifan et al., 2024). This is evident in learning artifacts such as the structured Qur'an Hadith module and thematic presentations, which are systematically organized and polished, in line with the findings of Ul Haq et al. (2025) regarding the importance of institutional support and digital literacy in maximizing AI effectiveness. Thus, AI integration not only accelerates material creation but also introduces innovative modes of content delivery that traditional approaches cannot easily achieve. This insight is reinforced by findings that AI tools are capable of producing a variety of content with high uniqueness, consistency of ideas, and depth of scientific understanding (Qistiyah & Sabandi, 2024).

Second, AI has proven to be a pedagogical support that facilitates concept simplification, material adaptation, and differentiated instruction. This finding confirms literature indicating that AI can provide alternative explanations, analogies, and personalized learning pathways (Alvarado, 2023; Thalji & Alkhasawneh, 2025). In this study, participants used AI to reformulate

Author
1.Missing Critical Voice (Important)
1.The Discussion is almost entirely affirmative.
2.Q1 reviewers will ask:
•What *didn't* AI solve?
•What tensions did students face?
•Where did AI feel inadequate, risky, or ethically complex?
1.Even phenomenological studies should include ambivalence.
2.Reviewer-style comment:
3.The Discussion would benefit from a more critical engagement with AI use, including tensions, uncertainties, or limits perceived by participants.

2.Contribution Claims Are Too Diffuse
Your contribution is strong, but scattered.
Expect: A **clear synthesis paragraph** answering:
1.What is *new*?
2.For whom?
3.Why does it matter theoretically?
Suggested Framing (Conceptual)
Your study contributes by:
•Extending AI discourse into value-laden religious education
•Revealing AI as identity-mediating, not just instructional
•Demonstrating phenomenological meaning-making in pre-service teachers
Reply Resolve

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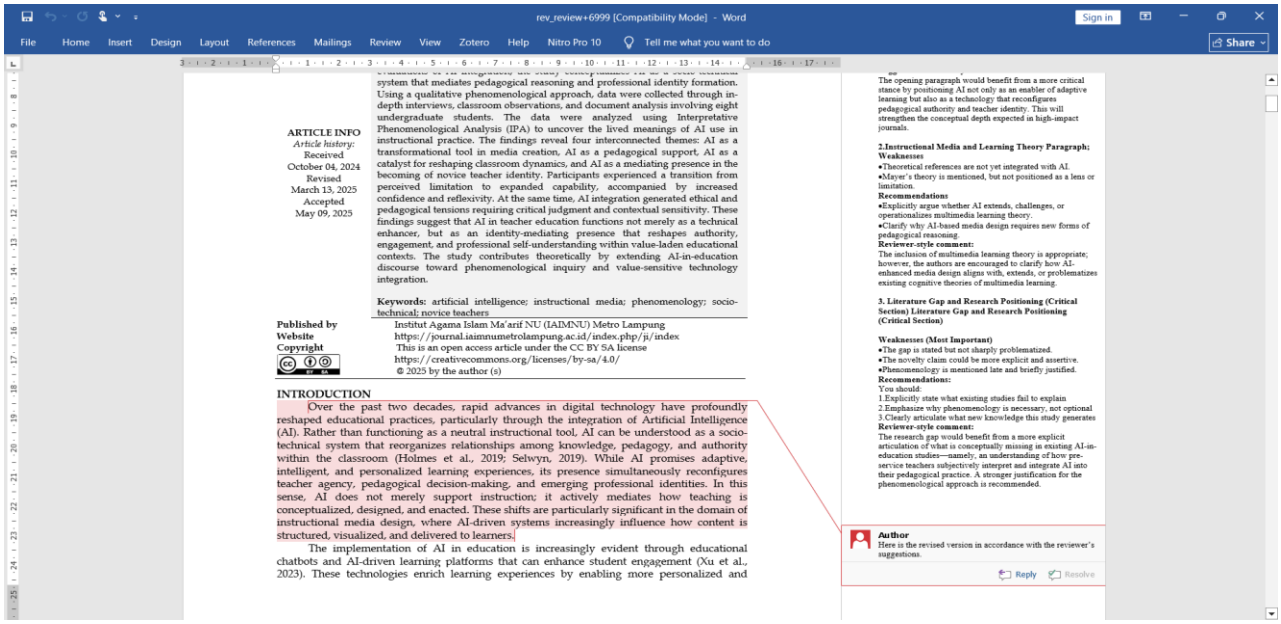

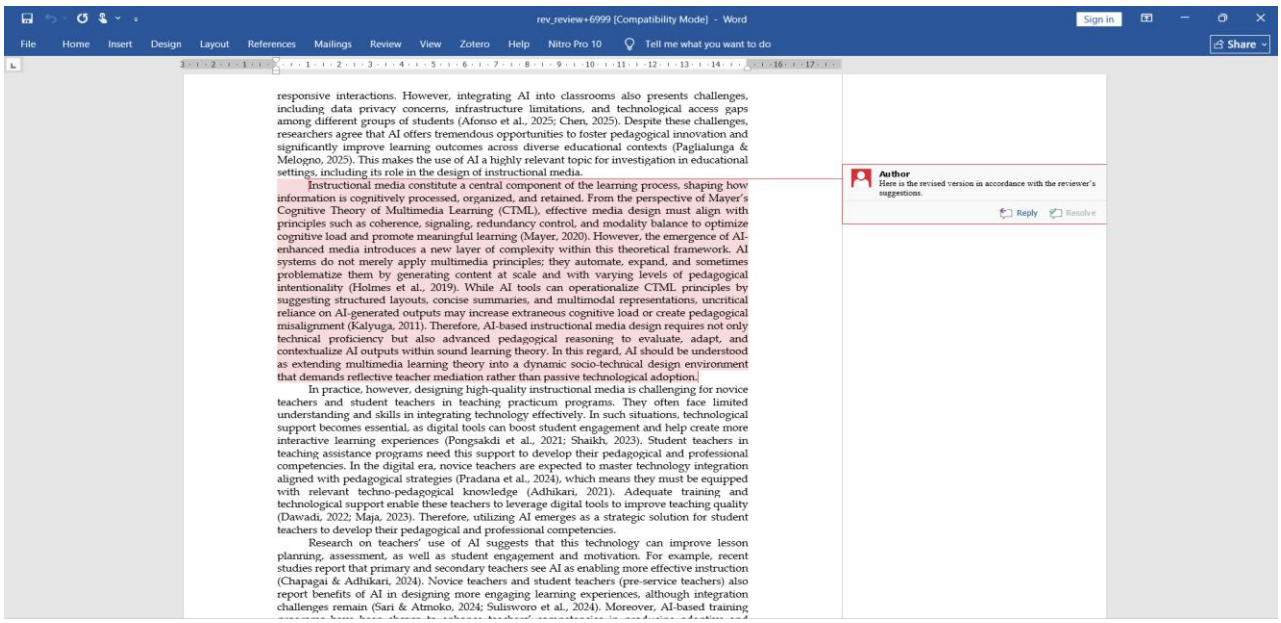

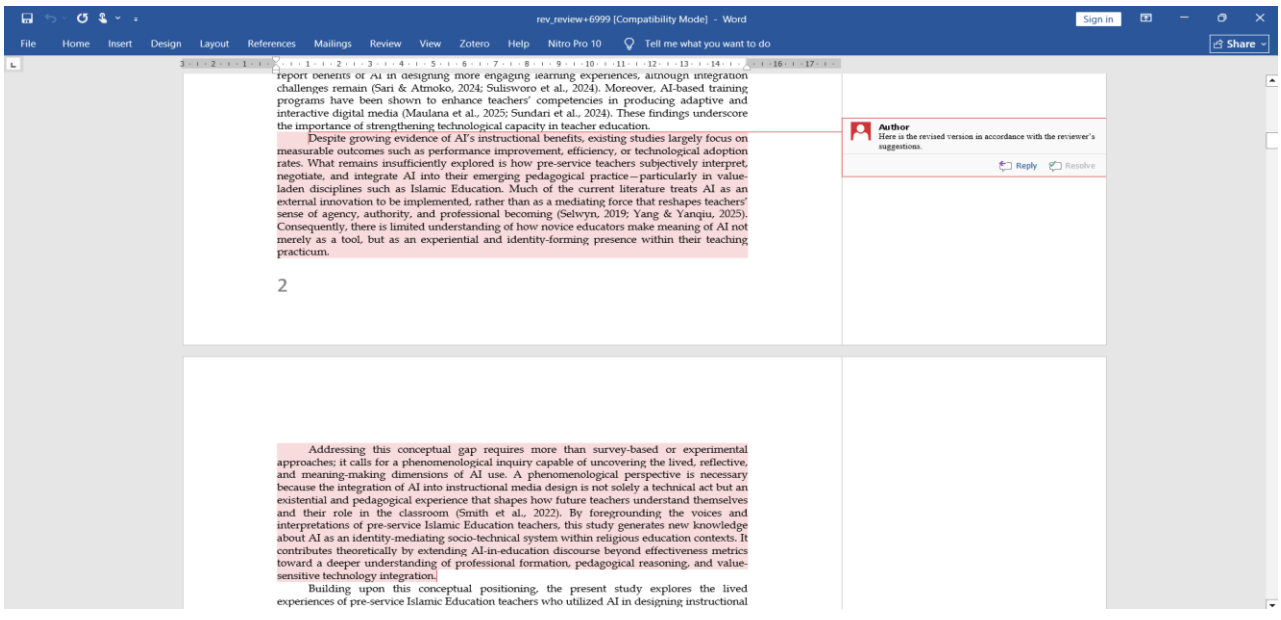

Beyond technical efficiency, participants' narratives reveal a deeper experiential transition from perceived limitation to expanded capability. Prior to using AI, several students described feelings of uncertainty, creative constraint, and time pressure when designing instructional media independently. The process was often experienced as cognitively demanding and emotionally taxing. The introduction of AI altered this experiential landscape. Students reported a sense of relief when complex tasks became manageable, increased confidence when their media appeared more professional, and a growing feeling of empowerment as they realized they could produce materials previously beyond their skill level. In phenomenological terms, AI was not merely a productivity enhancer but a mediating presence that reshaped how these novice teachers experienced their own competence. The transformation, therefore, was not only in the artifacts produced, but in the students' evolving self-perception as capable instructional designers.

Author
Here is the additional paragraph added as a revision in accordance with the reviewer's suggestions.
Reply Resolve

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the context of Islamic Education lessons. Another example is a thematic moral education presentation that employed AI-generated illustrations, survey data, and narratives relevant to students' social media reality, thereby enhancing the material's appeal to students. The consistency between interview narratives, observation outcomes, and artifact evidence strengthens the finding that AI not only aids teachers in explaining content but also enriches students' learning experiences both emotionally and socially.

Interestingly, for several participants, the heightened engagement generated by AI-based media was initially experienced as surprising and somewhat unsettling. Islamic Education had previously been imagined as requiring solemnity, seriousness, and moral gravity. The introduction of gamified quizzes, digital avatars, and visually dynamic presentations challenged these assumptions. Some students reflected on an internal tension between maintaining the sacredness of religious content and embracing interactive, entertainment-infused formats. However, rather than perceiving this tension as a contradiction, participants gradually reframed it as pedagogically productive. They began to see that seriousness of content does not necessitate rigidity of delivery. In phenomenological terms, AI-mediated engagement disrupted prior pedagogical beliefs and invited a reconfiguration of what it means to teach religious values in a digital generation. Thus, the transformation in classroom dynamics was not merely behavioral but epistemic—reshaping how student teachers conceptualized engagement, reverence, and meaningful learning.

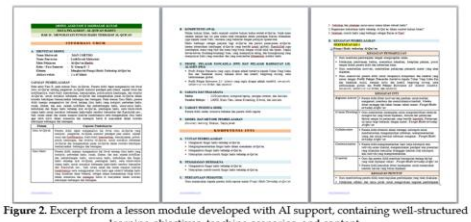

Figure 2. Excerpt from a lesson module developed with AI support, containing well-structured learning objectives, teaching scenarios, and content.

Author
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Reply Resolve

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Yet respectful of the content's religious context. These efforts suggest that the students were actively constructing an image of themselves as creative, tech-savvy, and responsible educators. They viewed the integration of AI as part of becoming a professional teacher who can harness modern tools while upholding educational and religious values.

More profoundly, the participants' reflections suggest that professional identity was not experienced as a fixed attribute they possessed, but as a dynamic process of becoming shaped through interaction with AI. The technology functioned as a reflective mirror through which they evaluated their competence, creativity, and relevance in a rapidly evolving educational landscape. When students received positive feedback from pupils or observed heightened engagement, they did not merely interpret this as success of a tool; they interpreted it as evidence of their emerging capability as teachers. Conversely, moments of uncertainty in selecting, editing, or ethically evaluating AI-generated content prompted deeper self-questioning about responsibility and authority. In this sense, AI operated as a mediating presence in the formation of professional self-understanding. Identity emerged not prior to AI use, but through the dialogical engagement between student teachers, technological affordances, classroom realities, and value commitments. Thus, AI became part of the narrative through which these novice educators articulated who they are becoming as teachers in the digital age.

In summary, the students' experiences yielded four significant interpretations of AI use: as a transformational tool, as a pedagogical support, as a catalyst for classroom dynamics, and as a component of professional identity formation. These meanings illustrate a multifaceted understanding of AI—beyond its technical utility—highlighting its role in empowering novice teachers and shaping their approaches to teaching and professional growth.

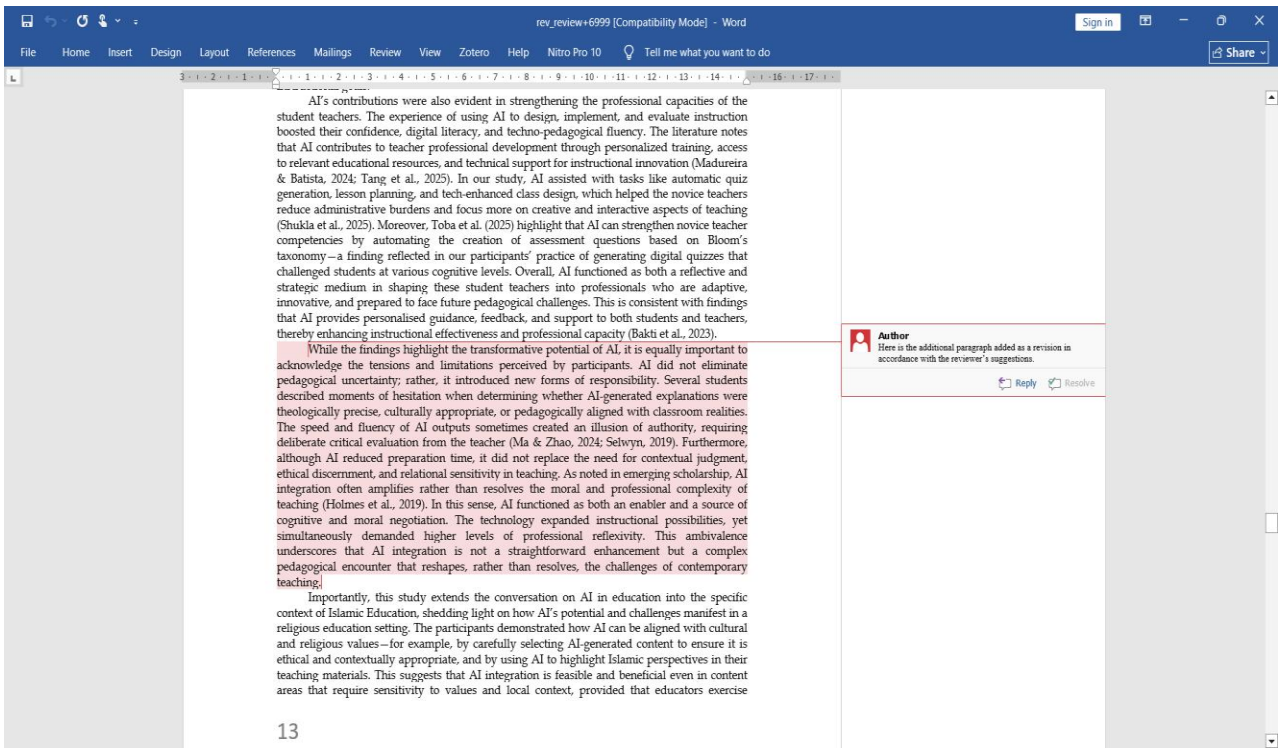
Author
Here is the additional paragraph added as a revision in accordance with the reviewer's suggestions.
Reply Resolve

2. AI's Contributions to Teaching Practice and Students' Professional Development

Through the IPA, three main findings were identified regarding AI's contributions to the student teachers' instructional practices and professional growth. Each finding is derived from interview narratives and corroborated by classroom observation results as well as analyses of documents and media that the students produced during the Teaching Assistance Program.

Table 2. Contributions of AI to Teaching Process, Student Response, and Student Teachers' Professional Development

No.	Focus of AI's Contribution	Description of Findings	Interview Excerpts
1	Enhancing the quality of instructional delivery	AI reinforces lesson structure, clarifies content delivery, and aids differentiation in heterogeneous classrooms. Student teachers found that AI helped them present content in a more organized and accessible way, and tailor teaching methods to different student needs.	"AI makes the material more coherent and easier to understand" (MI); "The structure from AI made it easier for me to teach" (RD); "AI helped me prepare a clearer flow of the lesson" (BG)
2	Increasing student motivation and engagement	Interactive media such as AI-generated quizzes, digital avatars, and modern visuals created a more lively and	"This is like watching a YouTuber, Ma'am!" (EV, imitating a student's excitement);

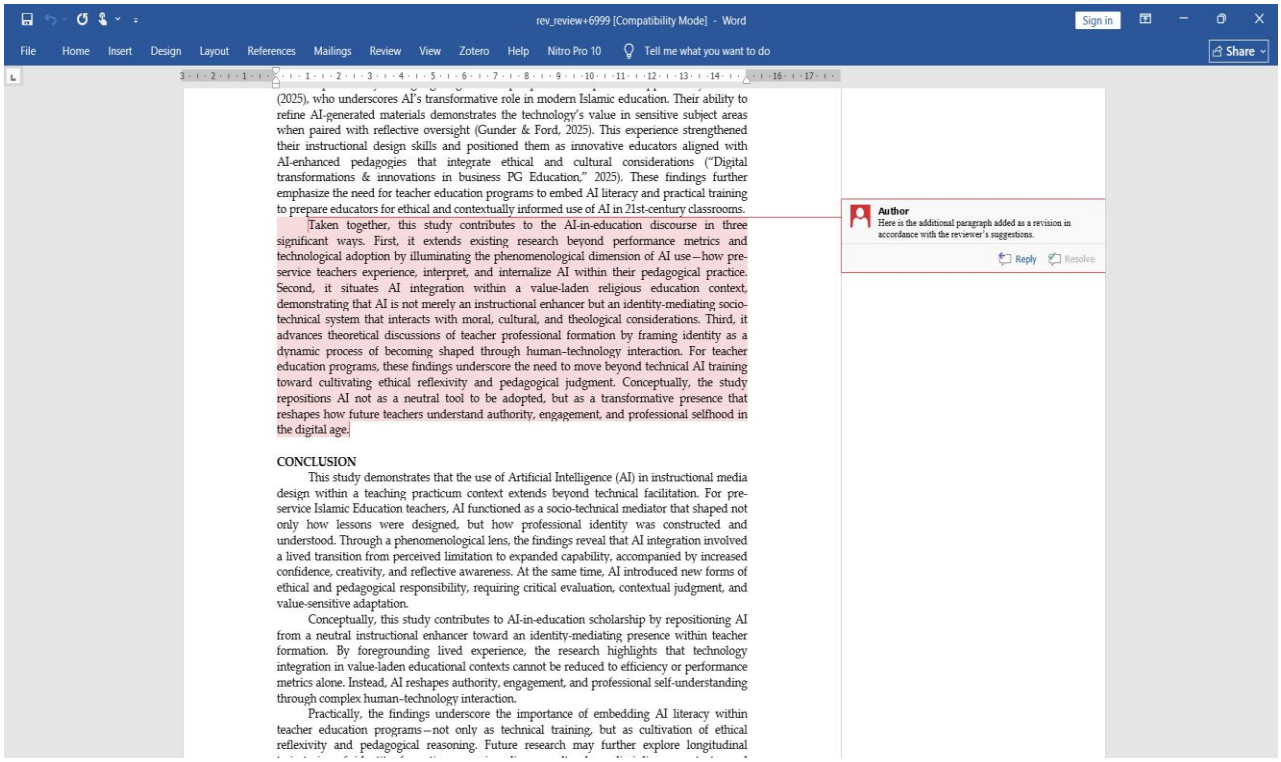


AI's contributions were also evident in strengthening the professional capacities of the student teachers. The experience of using AI to design, implement, and evaluate instruction boosted their confidence, digital literacy, and techno-pedagogical fluency. The literature notes that AI contributes to teacher professional development through personalized training, access to relevant educational resources, and technical support for instructional innovation (Madureira & Batista, 2024; Tang et al., 2025). In our study, AI assisted with tasks like automatic quiz generation, lesson planning, and tech-enhanced class design, which helped the novice teachers reduce administrative burdens and focus more on creative and interactive aspects of teaching (Shukla et al., 2025). Moreover, Toba et al. (2025) highlight that AI can strengthen novice teacher competencies by automating the creation of assessment questions based on Bloom's taxonomy—a finding reflected in our participants' practice of generating digital quizzes that challenged students at various cognitive levels. Overall, AI functioned as both a reflective and strategic medium in shaping these student teachers into professionals who are adaptive, innovative, and prepared to face future pedagogical challenges. This is consistent with findings that AI provides personalised guidance, feedback, and support to both students and teachers, thereby enhancing instructional effectiveness and professional capacity (Bakti et al., 2023).

While the findings highlight the transformative potential of AI, it is equally important to acknowledge the tensions and limitations perceived by participants. AI did not eliminate pedagogical uncertainty; rather, it introduced new forms of responsibility. Several students described moments of hesitation when determining whether AI-generated explanations were theologically precise, culturally appropriate, or pedagogically aligned with classroom realities. The speed and fluency of AI outputs sometimes created an illusion of authority, requiring deliberate critical evaluation from the teacher (Ma & Zhao, 2024; Selwyn, 2019). Furthermore, although AI reduced preparation time, it did not replace the need for contextual judgment, ethical discernment, and relational sensitivity in teaching. As noted in emerging scholarship, AI integration often amplifies rather than resolves the moral and professional complexity of teaching (Holmes et al., 2019). In this sense, AI functioned as both an enabler and a source of cognitive and moral negotiation. The technology expanded instructional possibilities, yet simultaneously demanded higher levels of professional reflexivity. This ambivalence underscores that AI integration is not a straightforward enhancement but a complex pedagogical encounter that reshapes, rather than resolves, the challenges of contemporary teaching.

Importantly, this study extends the conversation on AI in education into the specific context of Islamic Education, shedding light on how AI's potential and challenges manifest in a religious education setting. The participants demonstrated how AI can be aligned with cultural and religious values—for example, by carefully selecting AI-generated content to ensure it is ethical and contextually appropriate, and by using AI to highlight Islamic perspectives in their teaching materials. This suggests that AI integration is feasible and beneficial even in content areas that require sensitivity to values and local context, provided that educators exercise

13



(2025), who underscores AI's transformative role in modern Islamic education. Their ability to refine AI-generated materials demonstrates the technology's value in sensitive subject areas when paired with reflective oversight (Gunder & Ford, 2025). This experience strengthened their instructional design skills and positioned them as innovative educators aligned with AI-enhanced pedagogies that integrate ethical and cultural considerations ("Digital transformations & innovations in business PG Education," 2025). These findings further emphasize the need for teacher education programs to embed AI literacy and practical training to prepare educators for ethical and contextually informed use of AI in 21st-century classrooms.

Taken together, this study contributes to the AI-in-education discourse in three significant ways. First, it extends existing research beyond performance metrics and technological adoption by illuminating the phenomenological dimension of AI use—how pre-service teachers experience, interpret, and internalize AI within their pedagogical practice. Second, it situates AI integration within a value-laden religious education context, demonstrating that AI is not merely an instructional enhancer but an identity-mediating socio-technical system that interacts with moral, cultural, and theological considerations. Third, it advances theoretical discussions of teacher professional formation by framing identity as a dynamic process of becoming shaped through human–technology interaction. For teacher education programs, these findings underscore the need to move beyond technical AI training toward cultivating ethical reflexivity and pedagogical judgment. Conceptually, the study repositions AI not as a neutral tool to be adopted, but as a transformative presence that reshapes how future teachers understand authority, engagement, and professional selfhood in the digital age.

CONCLUSION

This study demonstrates that the use of Artificial Intelligence (AI) in instructional media design within a teaching practicum context extends beyond technical facilitation. For pre-service Islamic Education teachers, AI functioned as a socio-technical mediator that shaped not only how lessons were designed, but how professional identity was constructed and understood. Through a phenomenological lens, the findings reveal that AI integration involved a lived transition from perceived limitation to expanded capability, accompanied by increased confidence, creativity, and reflective awareness. At the same time, AI introduced new forms of ethical and pedagogical responsibility, requiring critical evaluation, contextual judgment, and value-sensitive adaptation.

Conceptually, this study contributes to AI-in-education scholarship by repositioning AI from a neutral instructional enhancer toward an identity-mediating presence within teacher formation. By foregrounding lived experience, the research highlights that technology integration in value-laden educational contexts cannot be reduced to efficiency or performance metrics alone. Instead, AI reshapes authority, engagement, and professional self-understanding through complex human–technology interaction.

Practically, the findings underscore the importance of embedding AI literacy within teacher education programs—not only as technical training, but as cultivation of ethical reflexivity and pedagogical reasoning. Future research may further explore longitudinal

Catatan revisi dari reviewer dan **hasil revisi** dari penulis dalam naskah lengkap, dapat dilihat pada halaman berikutnya, di bawah ini:

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Artificial Intelligence-Enhanced Instructional Media Design: Phenomenological Insights from Pre-Service Islamic Education Teachers

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ABSTRACT

This study explores how pre-service Islamic Education teachers experience and interpret the use of Artificial Intelligence (AI) in designing instructional media during a teaching practicum program. Moving beyond performance-based evaluations of AI integration, the study conceptualizes AI as a socio-technical system that mediates pedagogical reasoning and professional identity formation. Using a qualitative phenomenological approach, data were collected through in-depth interviews, classroom observations, and document analysis involving eight undergraduate students. The data were analyzed using Interpretative Phenomenological Analysis (IPA) to uncover the lived meanings of AI use in instructional practice. The findings reveal four interconnected themes: AI as a transformational tool in media creation, AI as a pedagogical support, AI as a catalyst for reshaping classroom dynamics, and AI as a mediating presence in the becoming of novice teacher identity. Participants experienced a transition from perceived limitation to expanded capability, accompanied by increased confidence and reflexivity. At the same time, AI integration generated ethical and pedagogical tensions requiring critical judgment and contextual sensitivity. These findings suggest that AI in teacher education functions not merely as a technical enhancer, but as an identity-mediating presence that reshapes authority, engagement, and professional self-understanding within value-laden educational contexts. The study contributes theoretically by extending AI-in-education discourse toward phenomenological inquiry and value-sensitive technology integration.

Keywords: artificial intelligence; instructional media; phenomenology; socio-technical; novice teachers

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INTRODUCTION

Over the past two decades, rapid advances in digital technology have profoundly reshaped educational practices, particularly through the integration of Artificial Intelligence (AI). Rather than functioning as a neutral instructional tool, AI can be understood as a socio-technical system that reorganizes relationships among knowledge, pedagogy, and authority within the classroom (Holmes et al., 2019; Selwyn, 2019). While AI promises adaptive, intelligent, and personalized learning experiences, its presence simultaneously reconfigures teacher agency, pedagogical decision-making, and emerging professional identities. In this sense, AI does not merely support instruction; it actively mediates how teaching is conceptualized, designed, and enacted. These shifts are particularly significant in the domain of instructional media design, where AI-driven systems increasingly influence how content is structured, visualized, and delivered to learners.

The implementation of AI in education is increasingly evident through educational chatbots and AI-driven learning platforms that can enhance student engagement (Xu et al.,

Commented [A1]: 1.**Opening Paragraph: Contextualization of AI in Educatio**
Weaknesses
•The paragraph is descriptive rather than argumentative.
•AI is presented as universally beneficial, with limited critical tension.
•No explicit connection yet to instructional media design.
Recommendations
•Add conceptual framing (e.g., AI as socio-technical system, not neutral tool).
•Introduce implicit tension: while AI promises personalization, it also reshapes teacher agency and professional identity.
Suggested reviewer-style comment:
The opening paragraph would benefit from a more critical stance by positioning AI not only as an enabler of adaptive learning but also as a technology that reconfigures pedagogical authority and teacher identity. This will strengthen the conceptual depth expected in high-impact journals.

2.Instructional Media and Learning Theory Paragraph;
Weaknesses
•Theoretical references are not yet integrated with AI.
•Mayer's theory is mentioned, but not positioned as a lens or limitation.
Recommendations
•Explicitly argue whether AI extends, challenges, or operationalizes multimedia learning theory.
•Clarify why AI-based media design requires new forms of pedagogical reasoning.
Reviewer-style comment:
The inclusion of multimedia learning theory is appropriate; however, the authors are encouraged to clarify how AI-enhanced media design aligns with, extends, or problematizes existing cognitive theories of multimedia learning.

3. Literature Gap and Research Positioning (Critical Section)
Literature Gap and Research Positioning (Critical Section)

Weaknesses (Most Important)
•The gap is stated but not sharply problematized.
•The novelty claim could be more explicit and assertive.
•Phenomenology is mentioned late and briefly justified.
Recommendations:
You should:
1.Explicitly state what existing studies fail to explain
2.Emphasize why phenomenology is necessary, not optional
3.Clearly articulate what new knowledge this study generates
Reviewer-style comment:
The research gap would benefit from a more explicit articulation of what is conceptually missing in existing AI-in-education studies—namely, an understanding of how pre-service teachers subjectively interpret and integrate AI into their pedagogical practice. A stronger justification for the phenomenological approach is recommended.

Commented [A2]: Here is the revised version in accordance with the reviewer's suggestions.

2023). These technologies enrich learning experiences by enabling more personalized and responsive interactions. However, integrating AI into classrooms also presents challenges, including data privacy concerns, infrastructure limitations, and technological access gaps among different groups of students (Afonso et al., 2025; Chen, 2025). Despite these challenges, researchers agree that AI offers tremendous opportunities to foster pedagogical innovation and significantly improve learning outcomes across diverse educational contexts (Paglialunga & Melogno, 2025). This makes the use of AI a highly relevant topic for investigation in educational settings, including its role in the design of instructional media.

Instructional media constitute a central component of the learning process, shaping how information is cognitively processed, organized, and retained. From the perspective of Mayer's Cognitive Theory of Multimedia Learning (CTML), effective media design must align with principles such as coherence, signaling, redundancy control, and modality balance to optimize cognitive load and promote meaningful learning (Mayer, 2020). However, the emergence of AI-enhanced media introduces a new layer of complexity within this theoretical framework. AI systems do not merely apply multimedia principles; they automate, expand, and sometimes problematize them by generating content at scale and with varying levels of pedagogical intentionality (Holmes et al., 2019). While AI tools can operationalize CTML principles by suggesting structured layouts, concise summaries, and multimodal representations, uncritical reliance on AI-generated outputs may increase extraneous cognitive load or create pedagogical misalignment (Kalyuga, 2011). Therefore, AI-based instructional media design requires not only technical proficiency but also advanced pedagogical reasoning to evaluate, adapt, and contextualize AI outputs within sound learning theory. In this regard, AI should be understood as extending multimedia learning theory into a dynamic socio-technical design environment that demands reflective teacher mediation rather than passive technological adoption.

Commented [A3]: Here is the revised version in accordance with the reviewer's suggestions.

In practice, however, designing high-quality instructional media is challenging for novice teachers and student teachers in teaching practicum programs. They often face limited understanding and skills in integrating technology effectively. In such situations, technological support becomes essential, as digital tools can boost student engagement and help create more interactive learning experiences (Pongsakdi et al., 2021; Shaikh, 2023). Student teachers in teaching assistance programs need this support to develop their pedagogical and professional competencies. In the digital era, novice teachers are expected to master technology integration aligned with pedagogical strategies (Pradana et al., 2024), which means they must be equipped with relevant techno-pedagogical knowledge (Adhikari, 2021). Adequate training and technological support enable these teachers to leverage digital tools to improve teaching quality (Dawadi, 2022; Maja, 2023). Therefore, utilizing AI emerges as a strategic solution for student teachers to develop their pedagogical and professional competencies.

Research on teachers' use of AI suggests that this technology can improve lesson planning, assessment, as well as student engagement and motivation. For example, recent studies report that primary and secondary teachers see AI as enabling more effective instruction (Chapagai & Adhikari, 2024). Novice teachers and student teachers (pre-service teachers) also report benefits of AI in designing more engaging learning experiences, although integration challenges remain (Sari & Atmoko, 2024; Sulisworo et al., 2024). Moreover, AI-based training programs have been shown to enhance teachers' competencies in producing adaptive and interactive digital media (Maulana et al., 2025; Sundari et al., 2024). These findings underscore the importance of strengthening technological capacity in teacher education.

Despite growing evidence of AI's instructional benefits, existing studies largely focus on measurable outcomes such as performance improvement, efficiency, or technological adoption rates. What remains insufficiently explored is how pre-service teachers subjectively interpret, negotiate, and integrate AI into their emerging pedagogical practice—particularly in value-laden disciplines such as Islamic Education. Much of the current literature treats AI as an external innovation to be implemented, rather than as a mediating force that reshapes teachers' sense of agency, authority, and professional becoming (Selwyn, 2019; Yang & Yanqiu, 2025). Consequently, there is limited understanding of how novice educators make meaning of AI not

merely as a tool, but as an experiential and identity-forming presence within their teaching practicum.

Addressing this conceptual gap requires more than survey-based or experimental approaches; it calls for a phenomenological inquiry capable of uncovering the lived, reflective, and meaning-making dimensions of AI use. A phenomenological perspective is necessary because the integration of AI into instructional media design is not solely a technical act but an existential and pedagogical experience that shapes how future teachers understand themselves and their role in the classroom (Smith et al., 2022). By foregrounding the voices and interpretations of pre-service Islamic Education teachers, this study generates new knowledge about AI as an identity-mediating socio-technical system within religious education contexts. It contributes theoretically by extending AI-in-education discourse beyond effectiveness metrics toward a deeper understanding of professional formation, pedagogical reasoning, and value-sensitive technology integration.

Commented [A4]: Here is the revised version in accordance with the reviewer's suggestions.

Building upon this conceptual positioning, the present study explores the lived experiences of pre-service Islamic Education teachers who utilized AI in designing instructional media during their teaching practicum. Specifically, the study aims to: (1) uncover how these student teachers interpret and make meaning of AI in the process of instructional media design; and (2) analyze how AI integration contributes to their pedagogical practice and professional identity formation. By situating AI use within a phenomenological framework, this study seeks to illuminate not only what AI enables in classrooms, but how it is experienced, negotiated, and internalized by novice educators in a value-oriented educational context.

METHOD

This research employed a qualitative method with a phenomenological approach to explore and understand the lived experiences of student teachers in the Teaching Assistance Program who utilized Artificial Intelligence (AI) in creating instructional media. The phenomenological approach is crucial for uncovering the essence of individuals' subjective experiences and understanding how meanings are constructed through social interaction and context (Cahill et al., 2017; Díaz Andrade, 2017). Through this approach, the researcher can examine how student teachers internalize the use of AI as an assistive tool in designing creative and innovative learning media, while also understanding the reflective processes that occur during their teaching practice (Manzoor, 2023). The goal is to identify the deep structures and meanings of the authentic experiences of these students when applying AI technology in the development of instructional media in school settings.

The participants were 8 students from the Islamic Education (PAI) Study Program at UIN Jurai Siwo Lampung who had completed a Teaching Assistance Program in partner schools and had experience using AI in producing instructional media. Participants were selected through purposive sampling based on specific criteria: (1) having participated in a teaching practicum at a school via the teaching assistance program, (2) having used AI technology to create instructional media, and (3) willingness to discuss their experiences reflectively. The sample size of eight was determined based on the principle of data sufficiency and saturation, as no new information emerged from interviews beyond this point (Creswell, 2009). The participants included both male and female students, all of whom were in the final year of their undergraduate program and had varying degrees of familiarity with educational technology tools prior to the study.

Data were collected through semi-structured, in-depth interviews that provided participants the flexibility to openly describe their experiences. Interview questions centered on their process of designing media with AI, the challenges and benefits they perceived, and their reflections on how AI influenced their teaching practice. All interviews were audio-recorded with participant consent and transcribed verbatim for analysis. In addition to interviews, the researcher collected documents in the form of examples of instructional media produced using AI (e.g. AI-generated lesson slides, quizzes, and module content). Field observations focused on the ways participants utilized AI-generated materials during lessons, and the interactions and

engagement of students with these materials. These multiple data sources provided a richer context for understanding the participants' experiences.

The data were analyzed following the steps of Interpretative Phenomenological Analysis (IPA) as outlined by Smith, Flowers, and Larkin (2022). The analysis process began with **reading and re-reading** the interview transcripts to immerse the researcher in the participants' narratives and gain a deep understanding of each individual's experience (Smith et al., 2022). Next, **initial noting** was performed, involving detailed annotations on the transcripts capturing descriptive comments (what was said), linguistic comments (how it was said), and conceptual comments (researcher's interpretations and insights). These initial notes were then used to develop **emergent themes** by identifying patterns and significant concepts that encapsulate the essence of each participant's statements. The emergent themes were carefully examined and clustered to form **superordinate themes** by looking for connections, similarities, or overarching structures that span across the detailed themes. Each case (participant) was analyzed individually to honor the idiographic nature of phenomenology, and only after analyzing all cases did the researcher proceed to identify **patterns across cases**. In this cross-case analysis, commonalities and divergences among participants' experiences were noted, leading to a composite understanding of the group's shared meanings as well as unique individual nuances (Smith et al., 2022). This layered analytical approach allowed for a deep, reflective interpretation of the data, preserving the richness of each participant's account while constructing a coherent overall picture of the phenomenon.

To ensure the trustworthiness of the findings, this study employed triangulation and member checking. Triangulation was conducted by comparing information from multiple sources: interview narratives, the AI-generated instructional media documents, and the classroom observation notes, to see if they converged on the same themes or revealed contradictions. This cross-verification strengthened the credibility of the interpretations. Member checking involved providing participants with summaries of the preliminary findings or interpretations and soliciting their feedback to verify accuracy and resonance with their lived experiences (Creswell & Poth, 2018). The participants confirmed that the themes reflected their experiences adequately and offered clarifications when necessary.

RESULT AND DISCUSSION

Results

1. Students' Interpretations of AI Use in Instructional Media Design

Based on the IPA, the meanings that student teachers attached to the use of AI in designing instructional media can be distilled into four main thematic constructions. Each theme emerged from the interview narratives and is reinforced by classroom observation findings and analyses of the instructional media artifacts produced (such as teaching modules and AI-generated quizzes). Table 1 presents an overview of these four themes, along with descriptions and illustrative quotes from participants.

Table 1. Students' Perceived Meanings of Artificial Intelligence in Designing Instructional Media

No.	Main Theme of Meaning	Description of Findings	Interview Excerpts
1	AI as a transformational tool in media creation	Students view AI as a technology that brings efficiency and ease to producing high-quality materials, questions, and visual media. AI is perceived not merely as a technical aid, but as a transformative agent in teaching practice.	"AI helps me create presentations and videos that are far more engaging" (EV); "AI makes my preparation time much faster" (BG); "AI simplifies the process of gathering content so I don't have to search for too long" (ZF); "I can produce materials that I couldn't have made on my own before" (MS)
2	AI as a pedagogical support	AI assists in simplifying difficult concepts, providing alternative	"AI helps me structure the material more systematically" (RD); "If

		explanations, and strengthening the sequencing of lesson content. Students feel that AI supports their pedagogical needs by helping adapt content to student level and organizing material systematically.	students are confused, I use AI to give an alternative explanation" (MI); "AI helps me adjust the language to the students' level" (EV)
3	AI as a catalyst for changing classroom dynamics	AI-based media increase student enthusiasm, attention, and participation, especially among typically passive students. The use of interactive quizzes and AI-generated videos leads to a more lively and participatory class environment.	"Students immediately became enthusiastic and competed to answer" (ND); "The AI quiz turned usually passive students into active ones" (MS); "The avatar video made the kids focus" (EV)
4	AI as part of novice teacher professional identity formation	Positive experiences with AI build student teachers' confidence, creativity, and motivation to continue developing as future educators. Students feel that using AI has become part of their journey in becoming adaptive and innovative teachers.	"Praise from students made me more confident" (BG); "AI made me realize teachers must keep evolving with technology" (LF); "This experience makes me feel more prepared to be a teacher" (RD); "AI has added to my capacity as a future teacher" (ZF)

1.1 Artificial Intelligence as a Transformational Tool in Instructional Media Creation

Students interpreted AI as a technology that enables them to produce instructional media more quickly, easily, and with higher quality, positioning AI not just as a technical aide but as an agent of transformation in teaching practice. One participant, EV, emphasized, "AI helps me create presentations and videos that are far more engaging than if I did it manually" (EV), while BG stated, "With AI, I can make media that I previously would not have been able to create by myself" (BG). This interpretation is consistent with observation results: almost all participants scored high on the planning and production of AI-based media, indicating that they designed and generated slides, videos, teaching modules, and even auto-graded quizzes using various platforms such as ChatGPT, Canva's AI tools, PowerPoint AI generator, Gamma and Quizizz's AI features. The effectiveness of this approach was evident in classroom artifacts. For instance, a presentation titled "Menghindari Gibah, Menumbuhkan Tabayyun" ("Avoiding Gossip, Embracing Verification") and another on *Qur'an Hadith* were well-structured, used polished language, and had professional visual designs, demonstrating AI's support in creating coherent and high-quality content.

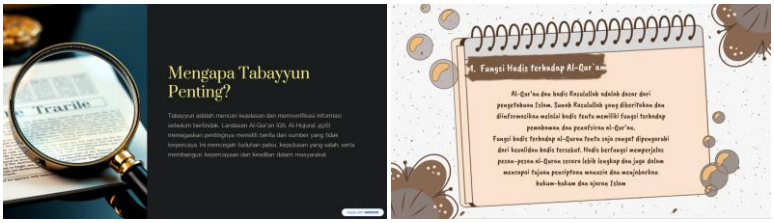

Figure 1. An AI-assisted presentation slide (Gamma and Canva) created and used by a student.

This slide demonstrates how AI helps student teachers generate more structured and visually engaging materials for classroom use. The automatically suggested layouts, graphics, and well-organized text reflect AI support in clarifying conceptual flow and enhancing the visual appeal of the instructional content. The use of such AI-generated slides (Gamma and Canva) confirmed that students perceive AI as a transformational tool, fundamentally changing

Commented [A5]: 1.**Theme 1: AI as a Transformational Tool Strengths**
You can strengthen phenomenology by:
•Explicitly showing contrast with pre-AI experiences
•Highlighting emotional shifts (confidence, relief, empowerment)
Suggested addition (conceptual, not textual):
Show how students experienced a *transition* from limitation → capability.

their media creation process from a manual, time-consuming task to a more efficient, structured, and productive workflow.

Beyond technical efficiency, participants' narratives reveal a deeper experiential transition from perceived limitation to expanded capability. Prior to using AI, several students described feelings of uncertainty, creative constraint, and time pressure when designing instructional media independently. The process was often experienced as cognitively demanding and emotionally taxing. The introduction of AI altered this experiential landscape. Students reported a sense of relief when complex tasks became manageable, increased confidence when their media appeared more professional, and a growing feeling of empowerment as they realized they could produce materials previously beyond their skill level. In phenomenological terms, AI was not merely a productivity enhancer but a mediating presence that reshaped how these novice teachers experienced their own competence. The transformation, therefore, was not only in the artifacts produced, but in the students' evolving self-perception as capable instructional designers.

Commented [A6]: Here is the additional paragraph added as a revision in accordance with the reviewer's suggestions.

1.2 Artificial Intelligence as a Pedagogical Support for Simplifying Concepts and Differentiation

Students also interpreted AI as a pedagogical partner that assists them in simplifying complex concepts, providing varied explanations, and strengthening the structure of the material to be delivered. RD noted, "AI helps me organize material in a more systematic and student-friendly way" (RD), while MI added, "If a student is confused, I use AI to provide another example or explanation" (MI). This interpretation aligns with observation findings on how AI-generated media were integrated into teaching and how outputs were adapted. Students did not simply present raw AI outputs; they actively simplified language, selected appropriate examples, and adjusted content to the local context before using it in class. This is evidenced by high observation scores in the categories of content adaptation and creativity.

Document analysis supports this theme. For example, an AI-assisted *Qur'an Hadith* module initially contained a dense paragraph explaining the function of Hadith in relation to the Qur'an, which the student then condensed into bullet points on slides for classroom presentation. This process indicates the use of AI for summarizing and tidying up content, followed by the student's effort to tailor it to the learners' characteristics. Similarly, in the "Avoiding Gossip, Embracing Verification" presentation, the content structure—from definition, scripture references, and survey data, to practical steps and case studies—suggests systematic support from a text generator (AI) which was then contextualized within the Islamic Education perspective. Thus, the interpretation of AI as a pedagogical support is reflected in the students' ability to process AI outputs into material that is more accessible and comprehensible for their students.

1.3 Artificial Intelligence as a Catalyst for Changes in Classroom Dynamics and Student Engagement

Students perceived AI as a catalyst that transforms classroom dynamics to be more lively, participatory, and enjoyable. ND described, "When I used Quizizz, the students became instantly enthusiastic and were eager to answer" (ND), whereas EV recounted an experience using an AI-based video: "The students said the AI video felt like watching a YouTuber, and they became more active in asking questions" (EV). These accounts indicate that AI-based media hold strong emotional and aesthetic appeal for students, thereby increasing their engagement. Observation data reinforced this interpretation: in classes utilizing interactive AI quizzes and AI-enhanced presentations, observers recorded higher levels of student participation compared to classes with conventional media. Students were eager to answer questions, actively responded, and engaged in discussions following the viewing of videos or presentation of case studies generated with AI. The observation scores for student activeness and classroom interaction were predominantly in the good to excellent range, signaling that AI media contributed to a more conducive and participatory learning atmosphere.

Commented [A7]: **Theme 3: Classroom Dynamics and Engagement**
Level Suggestion
Add phenomenological nuance:
- Was engagement surprising?
- Did it challenge prior beliefs about teaching Islamic Education?
- Did it create tension between entertainment and seriousness?

This deepens meaning, not just outcome.

The instructional media documents also illustrate AI's potential in altering the learning ambiance. For example, daily quizzes created with Wayground/Quizizz were designed with interfaces familiar to the digital generation, effectively bridging students' digital culture with the context of Islamic Education lessons. Another example is a thematic moral education presentation that employed AI-generated illustrations, survey data, and narratives relevant to students' social media reality, thereby enhancing the material's appeal to students. The consistency between interview narratives, observation outcomes, and artifact evidence strengthens the finding that AI not only aids teachers in explaining content but also enriches students' learning experiences both emotionally and socially.

Interestingly, for several participants, the heightened engagement generated by AI-based media was initially experienced as surprising and somewhat unsettling. Islamic Education had previously been imagined as requiring solemnity, seriousness, and moral gravity. The introduction of gamified quizzes, digital avatars, and visually dynamic presentations challenged these assumptions. Some students reflected on an internal tension between maintaining the sacredness of religious content and embracing interactive, entertainment-infused formats. However, rather than perceiving this tension as a contradiction, participants gradually reframed it as pedagogically productive. They began to see that seriousness of content does not necessitate rigidity of delivery. In phenomenological terms, AI-mediated engagement disrupted prior pedagogical beliefs and invited a reconfiguration of what it means to teach religious values in a digital generation. Thus, the transformation in classroom dynamics was not merely behavioral but epistemic—reshaping how student teachers conceptualized engagement, reverence, and meaningful learning.

Commented [A8]: Here is the additional paragraph added as a revision in accordance with the reviewer's suggestions.

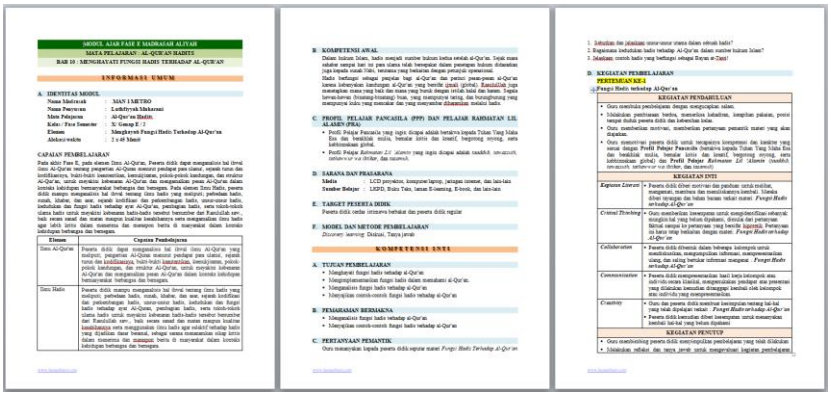

Figure 2. Excerpt from a lesson module developed with AI support, containing well-structured learning objectives, teaching scenarios, and content.

The module content illustrates how AI helped summarize theory, simplify concepts, and suggest varied learning activities. These outputs indicate AI's role in condensing material, providing alternative explanations, and organizing components of the lesson in alignment with the *Kurikulum Merdeka* (Indonesian national curriculum) format. The overall evidence shows that students used AI to strengthen the conceptual and structural aspects of their lesson planning, making their teaching process more planned, focused, and effective. AI not only eased the preparation of content but also provided an initial framework which the students then refined and enriched with pedagogical considerations.

Commented [A9]: **Theme 4: Professional Identity Formation (Most Original Contribution)**
Major Strength
•Identity as becoming, not possession
•AI as a mirror through which students see themselves as teachers
Reviewer-style comment:
The theme of professional identity formation is a major strength and represents a clear contribution. The authors may strengthen it further by framing identity as a dynamic process of becoming mediated by AI use.

1.4 Artificial Intelligence as an Element in Novice Teacher Professional Identity Formation

Students felt that their experience using AI became an integral part of forming their professional identity as future teachers in the digital era. BG mentioned, "Praise from students

for the media I created with AI made me more confident in teaching" (BG). Likewise, LF observed that using AI pushed her to keep learning and adapting: "AI made me realize that as a teacher I must continuously develop by keeping up with technology" (LF). This meaning is reflected in high observation scores on the ethics and responsibility aspects of AI use, where students showed mindfulness in selecting content, avoiding plagiarism, and citing sources when using AI-generated material. Furthermore, on the reflection aspect, students began to evaluate the effectiveness of the AI media they used and plan improvements for subsequent lessons, indicating a developing habit of reflective practice.

Analysis of teaching modules, presentations, and quizzes provides additional evidence that students were not merely using AI in a technical sense, but were combining technological skills with considerations of Islamic educational values, student needs, and curriculum demands. For instance, their lesson plans were comprehensive; their choice of illustrations aligned with Islamic ethics; and their interactive quiz designs reflected an effort to be engaging yet respectful of the content's religious context. These efforts suggest that the students were actively constructing an image of themselves as creative, tech-savvy, and responsible educators. They viewed the integration of AI as part of becoming a professional teacher who can harness modern tools while upholding educational and religious values.

More profoundly, the participants' reflections suggest that professional identity was not experienced as a fixed attribute they possessed, but as a dynamic process of becoming shaped through interaction with AI. The technology functioned as a reflective mirror through which they evaluated their competence, creativity, and relevance in a rapidly evolving educational landscape. When students received positive feedback from pupils or observed heightened engagement, they did not merely interpret this as success of a tool; they interpreted it as evidence of their emerging capability as teachers. Conversely, moments of uncertainty in selecting, editing, or ethically evaluating AI-generated content prompted deeper self-questioning about responsibility and authority. In this sense, AI operated as a mediating presence in the formation of professional self-understanding. Identity emerged not prior to AI use, but through the dialogical engagement between student teachers, technological affordances, classroom realities, and value commitments. Thus, AI became part of the narrative through which these novice educators articulated who they are becoming as teachers in the digital age.

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In summary, the students' experiences yielded four significant interpretations of AI use: as a transformational tool, as a pedagogical support, as a catalyst for classroom dynamics, and as a component of professional identity formation. These meanings illustrate a multifaceted understanding of AI—beyond its technical utility—highlighting its role in empowering novice teachers and shaping their approaches to teaching and professional growth.

2. AI's Contributions to Teaching Practice and Students' Professional Development

Through the IPA, three main findings were identified regarding AI's contributions to the student teachers' instructional practices and professional growth. Each finding is derived from interview narratives and corroborated by classroom observation results as well as analyses of documents and media that the students produced during the Teaching Assistance Program.

Table 2. Contributions of AI to Teaching Process, Student Response, and Student Teachers' Professional Development

No.	Focus of AI's Contribution	Description of Findings	Interview Excerpts
1	Enhancing the quality of instructional delivery	AI reinforces lesson structure, clarifies content delivery, and aids differentiation in heterogeneous classrooms. Student teachers found that AI helped them present content in a more organized and accessible way, and tailor teaching methods to different student needs.	"AI makes the material more coherent and easier to understand" (MI); "The structure from AI made it easier for me to teach" (RD); "AI helped me prepare a clearer flow of the lesson" (BG)

2	Increasing student motivation and engagement	Interactive media such as AI-generated quizzes, digital avatars, and modern visuals created a more lively and engaging learning atmosphere. The novelty and familiarity of these AI-based elements boosted student interest and participation.	"This is like watching a YouTuber, Ma'am!" (EV, imitating a student's excitement); "Students who are usually passive became active participants" (MS); "Quizizz made the class much more fun" (ND)
3	Strengthening novice teacher professionalism	The use of AI improved the student teachers' digital literacy, confidence, and techno-pedagogical skills. It helped them feel more competent and professional by enabling the creation of high-quality teaching media.	"The media I made with AI made me more confident in teaching" (BG); "AI made me realize the importance of digital skills for teachers" (LF); "I feel more professional because I can create good media" (ZF)

2.1 Artificial Intelligence as an Enhancer of Teaching Quality and Effectiveness

The first finding indicates that students positioned AI as a tool that strengthens the quality and effectiveness of their teaching, mainly by simplifying content, providing a clear lesson structure, and supporting differentiation to accommodate diverse student abilities. Students perceived that AI helped them deliver more focused and easily understood material. EV encapsulated this by saying, "AI can turn complex material into something simpler and quickly understood by students" (EV). Similarly, RD affirmed, "AI helps me organize the content more systematically and appropriate to the students' level" (RD). These statements suggest that AI functioned as a partner that makes it easier for the student teachers to manage instructional content.

This interpretation is aligned with observation findings: most of the student teachers received high marks on aspects of lesson planning, content appropriateness, and alignment between objectives, content, and media. Observers noted that the materials presented had a clear flow, logical sequence of concepts, and a level of complexity suited to the student audience. This indicates that the students did not rely on AI outputs verbatim; rather, they utilized AI-generated suggestions to refine the structure of the material and adapt it to their students' needs. Supporting documentation further strengthens this finding. For example, an AI-assisted *Qur'an Hadith* lesson module (Chapter 10) demonstrated well-organized learning objectives, content outlines, and structured learning activities, while a slide presentation for the same chapter showed how complex content about the function of Hadith vis-à-vis the Qur'an was distilled into concise bullet points with clear visual emphasis.

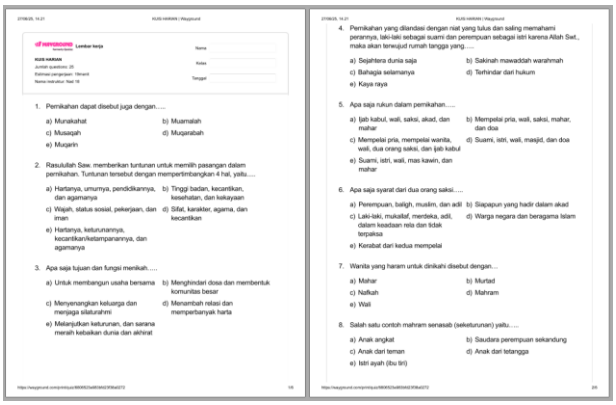

Figure 3. Example of an AI-generated interactive quiz used by a student teacher to formatively assess students' understanding.

The quiz is automatically formatted, with a variety of distractors and a modern digital interface, indicating the use of AI in question generation and evaluation management. This quiz significantly increased student enthusiasm and created a more participatory learning atmosphere. The auto-graded format and gamified elements bridged the gap between students' digital experiences and the formal classroom, serving not just as a visual aid, but as a motivational trigger that enhanced engagement in the learning process.

Overall, the students' use of AI clearly bolstered the conceptual clarity and structural coherence of their lessons, making their teaching more planned and purposeful. AI provided initial content frameworks (such as organized outlines or simplified explanations) which the students then further developed with pedagogical insight. Thus, AI was understood as a catalyst that accelerates the improvement of lesson design and implementation, enabling the students to teach more effectively in the classroom.

2.2 Artificial Intelligence as a Trigger for Student Engagement and Motivation

The second finding confirms that AI contributed significantly to increasing student engagement and motivation. The student teachers observed that using modern visuals, videos, avatars, and AI-based gamification transformed the classroom atmosphere into one that was more vibrant, interactive, and fun. ND shared, "When I used Quizizz, students immediately became excited and even competed to answer questions" (ND). Likewise, EV noted a similar effect when she played a video with a digital avatar: "Students said, 'Ma'am, this is like watching a YouTuber but it's a lesson,' and they became more active in asking questions" (EV). These excerpts show that AI-based media have a strong emotional and entertainment value for students, capturing their interest and prompting them to participate more actively.

Observation results support these narratives. In classes where interactive AI quizzes and AI-augmented presentations were used, observers recorded much higher participation levels compared to classes using traditional media. Students appeared enthusiastic in answering quiz questions, actively responded to prompts, and engaged in discussions following AI-generated videos or case scenarios. Observation scores for student activeness and interaction were generally in the "good" to "very good" range, indicating that AI media helped create a learning environment that was both conducive and participatory. Documented media also corroborate this finding. The daily Quizizz-based quizzes were designed with interfaces familiar to students (including clear numbering of questions, answer options, and automatic scoring when used online), demonstrating that the student teachers leveraged AI not only to generate questions but also to design an assessment experience that was challenging yet enjoyable.

The integration of these AI tools resulted in clearly observable positive behavioral changes in students. The class became more *learner-centered*, with students eagerly taking part in activities rather than passively receiving information. In effect, AI served as a bridge between the students' digital lives and the formal classroom content, validating the students' familiarity with digital entertainment and incorporating it into educational activities. This contribution underscores that AI, in the eyes of the student teachers, is not just a means of delivering content but a mechanism to *enrich the learning experience*, increase student motivation, and align learning with the digital inclinations of contemporary students.

2.3 Artificial Intelligence as a Driver of Novice Teacher Professional Development

The third finding shows that using AI played a role in the professional identity development of the student teachers. Many participants felt that successfully employing AI in the classroom boosted their confidence, digital literacy, and techno-pedagogical abilities. BG conveyed, "Students said my media was cool, and that made me more confident while teaching" (BG). MI added that using AI made him increasingly aware of the importance of technology mastery for modern teachers: "AI helps me prepare lessons more creatively and according to student needs, and that strengthens me as a future teacher" (MI). These quotes illustrate that the experience of using AI became part of the students' reflective process in understanding their role and professional skills.

Observation data indicate that the students began to exhibit professional attitudes in managing AI-based instructional media. In terms of ethical AI usage, observers noted efforts by the students to modify and adapt AI-generated material rather than copying it verbatim. The participants were cautious in selecting AI-provided content, aligning it with Islamic values, and avoiding materials that were inappropriate for their classroom context. Additionally, regarding reflective practice, some students started evaluating the strengths and limitations of the AI media they used and planning improvements for subsequent lessons. This indicates the emergence of a critical perspective on their own teaching and the tools they use, which is a hallmark of professional growth.

The analysis of learning documents further reinforces this theme. The *Qur'an Hadith* module created by one participant was designed not only to facilitate knowledge transfer but also to instill religious values and scientific attitudes, showing the student's effort to integrate spiritual, cognitive, and technological dimensions. The AI-based presentations and quizzes also reflected the students' willingness to explore new formats that resonate with the digital generation while still maintaining academic and religious rigor in the content. These findings suggest that AI acted as a *catalyst* in the process of forming the student teachers' professional identities. Through repeated interactions with technology, student responses, and self-reflection, the participants built the conviction that teachers in the digital age need to be adaptive, creative, and responsible in leveraging AI for educational purposes.

In summary, the integration of AI in these student teachers' practice provided notable contributions: it improved the coherence and effectiveness of their instruction, heightened student engagement and motivation, and contributed to their development as confident, digitally literate, and reflective educators. These contributions were evidenced not only in the students' own perceptions and narratives but also through concrete observations of classroom behavior and the quality of instructional materials produced.

Discussion

The student teachers' interpretations of using Artificial Intelligence (AI) in designing instructional media indicate that this technology is understood not merely as a technical aid, but as an integral component shaping how future teachers design, develop, and reflect on learning. Recent literature affirms that AI functions as a pedagogical agent capable of creating more dynamic, adaptive, and collaborative learning environments (Alvarado, 2023; Asrifan et al., 2024). The experiences of the participants in this study revealed four forms of meaning—AI as a transformational tool, a pedagogical support, a catalyst for class dynamics, and a shaper of professional identity—that align with global trends in AI development in education, as noted by Thalji and Alkhasawneh (2025) and Chere and Wayi-Mgwebi (2024).

First, the notion of AI as a transformational tool in instructional media creation is strongly supported by prior research emphasizing AI's capability to generate creative, personalized, and high-quality content through generative tools like ChatGPT and AI-based design platforms (Mavundla et al., 2025; Rosario & Ciastellardi, 2024). In this study, students harnessed AI to develop slides, modules, avatar-led videos, and interactive quizzes, echoing the idea that AI extends teachers' pedagogical capacity and creativity via media automation (Asrifan et al., 2024). This is evident in learning artifacts such as the structured Qur'an Hadith module and thematic presentations, which are systematically organized and polished, in line with the findings of Ul Haq et al. (2025) regarding the importance of institutional support and digital literacy in maximizing AI effectiveness. Thus, AI integration not only accelerates material creation but also introduces innovative modes of content delivery that traditional approaches cannot easily achieve. This insight is reinforced by findings that AI tools are capable of producing a variety of content with high uniqueness, consistency of ideas, and depth of scientific understanding (Qistiyah & Sabandi, 2024).

Second, AI has proven to be a pedagogical support that facilitates concept simplification, material adaptation, and differentiated instruction. This finding confirms literature indicating that AI can provide alternative explanations, analogies, and personalized learning pathways (Alvarado, 2023; Thalji & Alkhasawneh, 2025). In this study, participants used AI to reformulate

Commented [A11]: 1.Missing Critical Voice (Important)
1.The Discussion is almost entirely affirmative.
2.Q1 reviewers will ask:
•What *didn't* AI solve?
•What tensions did students face?
•Where did AI feel inadequate, risky, or ethically complex?
1.Even phenomenological studies should include ambivalence.
2.Reviewer-style comment:
3.The Discussion would benefit from a more critical engagement with AI use, including tensions, uncertainties, or limits perceived by participants.

2.Contribution Claims Are Too Diffuse
Your contribution is strong, but scattered.
Expect: A **clear synthesis paragraph** answering:
1.What is *new*?
2.For whom?
3.Why does it matter theoretically?
Suggested Framing (Conceptual)
Your study contributes by:
•Extending AI discourse into value-laden religious education
•Revealing AI as identity-mediating, not just instructional
•Demonstrating phenomenological meaning-making in pre-service teachers

complex concepts—such as the function of Hadith, ethics of social media use, and the principle of *tabayyun* (verification)—into formats more easily grasped by students. This practice resonates with the work of Chere and Wayi-Mgwebi (2024), who report that AI can supply instant feedback and support student self-guided inquiry. Furthermore, our findings reinforce the theory that AI enhances teachers' Technological Pedagogical Content Knowledge (TPACK) by seamlessly integrating technology, pedagogy, and content (Tan et al., 2025). In essence, AI functioned not only as a content provider but as a *pedagogical partner* that bolsters the accuracy and instructional alignment of the materials.

Third, the contribution of AI as a catalyst in changing classroom dynamics was clearly observed in this study. Participants reported heightened student engagement, a more lively classroom atmosphere, and increased motivation when using AI-based media like Quizizz, digital avatars, and automated presentations. This aligns with findings by Tariq (2025), who asserted that AI can improve the effectiveness and variety of instructional strategies through interactive learning experiences. Similarly, Vashishth et al. (2024) highlighted AI's social impact in creating collaborative learning spaces appealing to the digital generation. The students in our study noted that their pupils felt "like watching a YouTuber but it's a lesson," implying that AI bridges digital youth culture with formal education. Additionally, AI's role in alleviating teachers' administrative burdens and improving instructional efficiency, as described by Thalji and Alkhasawneh (2025), was indirectly evident; with AI handling content generation and quiz grading, student teachers could focus more on facilitating learning and engaging with students.

Fourth, AI was found to play a role in shaping the professional identity of novice teachers. The experiences of the students using AI boosted their confidence, digital literacy, and awareness of the importance of technological competence in teaching—outcomes that are consistent with Tripathi et al. (2025) and Yang and Yanqiu (2025), who note that AI encourages teachers to redefine their professional roles and develop reflective skills. AI's support for professional development is also emphasized by Zhang (2025), who showed that repeated interactions with AI broaden pedagogical horizons and inspire teacher innovation. Meanwhile, Shao et al. (2025) stressed that using AI enhances novice teachers' cognitive and techno-pedagogical skills, thereby strengthening their competencies holistically. In our study, AI's impact went beyond technical aspects; it influenced how these student teachers perceive their roles, responsibilities, and professional growth in an increasingly digital educational ecosystem. They began to see themselves as adaptive and innovative educators, a transformation spurred by successful AI integration into their teaching. This aligns with findings that media technology in Islamic Religious Education enhances engagement, motivation, and digital competence, thereby strengthening teachers' professional growth (Suraijiah et al., 2023).

Integrating AI into the learning process and professional development of student teachers in this teaching practicum context has shown significant contributions to how novice educators understand, design, and implement instruction. Contemporary literature underscores that AI serves not just as a technical aid but as a *pedagogical ecosystem* supporting personalized learning, enhancing student engagement, and reinforcing teachers' professional competencies (Dei, 2025; Jakob et al., 2025; Kovalchuk et al., 2025). The experiences of the participants in our study confirm this view: AI directly contributed to improving instructional effectiveness, enriching classroom dynamics, and shaping their professional identities as digital-era educators. Empirical evidence gathered through interviews, observations, and document analysis demonstrates that AI provided an innovative space for these student teachers to explore media design, create interactive learning experiences, and deepen their pedagogical reflection.

Specifically, AI usage was found to improve the quality of the student teachers' instructional process, particularly through AI's capacity to personalize learning and expedite material preparation. Literature indicates that AI can tailor content and instructional methods to individual student needs, thereby creating effective and adaptive learning experiences (Dei, 2025; Jakob et al., 2025; Kovalchuk et al., 2025). In this study, participants leveraged AI to generate alternative explanations, simplify complex topics, and offer differentiated models of instruction. This aligns with findings by Malik et al. (2019) and Darıcan (2025), which assert that

AI supports instructional flexibility via automated assessments, content analysis, and rich resource provision. The learning artifacts produced (lesson modules, slide presentations, digital quizzes) illustrate how the students optimized AI recommendations to construct lesson structures that were coherent, accurate, and relevant. Thus, AI acted as a catalyst accelerating the enhancement of lesson planning and execution among these student teachers.

Beyond improving instructional design, AI played a pivotal role in boosting student motivation and engagement. Studies by Dan et al. (2025) and Chang and Chang (2025) emphasize that AI can deliver real-time feedback, foster interactive learning environments, and facilitate adaptive learning through gamified elements. Our findings corroborate these concepts: AI-based media such as Quizizz games, avatar videos, and auto-generated presentations prompted students to be more active and enthusiastic in class. Furthermore, Monzon and Hays (2025) explain that AI can enhance learning retention by presenting content in visually and emotionally engaging ways. This dynamic was clearly observed in our study—the emotional and visual appeal of AI-driven content (e.g., the excitement of a game-like quiz or a relatable digital animation) resonated with students and encouraged deeper participation. The increased engagement indicates that AI served not only as a visual aid, but as a mechanism enriching the learning experience and connecting students' digital preferences with the instructional goals.

AI's contributions were also evident in strengthening the professional capacities of the student teachers. The experience of using AI to design, implement, and evaluate instruction boosted their confidence, digital literacy, and techno-pedagogical fluency. The literature notes that AI contributes to teacher professional development through personalized training, access to relevant educational resources, and technical support for instructional innovation (Madureira & Batista, 2024; Tang et al., 2025). In our study, AI assisted with tasks like automatic quiz generation, lesson planning, and tech-enhanced class design, which helped the novice teachers reduce administrative burdens and focus more on creative and interactive aspects of teaching (Shukla et al., 2025). Moreover, Toba et al. (2025) highlight that AI can strengthen novice teacher competencies by automating the creation of assessment questions based on Bloom's taxonomy—a finding reflected in our participants' practice of generating digital quizzes that challenged students at various cognitive levels. Overall, AI functioned as both a reflective and strategic medium in shaping these student teachers into professionals who are adaptive, innovative, and prepared to face future pedagogical challenges. This is consistent with findings that AI provides personalised guidance, feedback, and support to both students and teachers, thereby enhancing instructional effectiveness and professional capacity (Bakti et al., 2023).

While the findings highlight the transformative potential of AI, it is equally important to acknowledge the tensions and limitations perceived by participants. AI did not eliminate pedagogical uncertainty; rather, it introduced new forms of responsibility. Several students described moments of hesitation when determining whether AI-generated explanations were theologically precise, culturally appropriate, or pedagogically aligned with classroom realities. The speed and fluency of AI outputs sometimes created an illusion of authority, requiring deliberate critical evaluation from the teacher (Ma & Zhao, 2024; Selwyn, 2019). Furthermore, although AI reduced preparation time, it did not replace the need for contextual judgment, ethical discernment, and relational sensitivity in teaching. As noted in emerging scholarship, AI integration often amplifies rather than resolves the moral and professional complexity of teaching (Holmes et al., 2019). In this sense, AI functioned as both an enabler and a source of cognitive and moral negotiation. The technology expanded instructional possibilities, yet simultaneously demanded higher levels of professional reflexivity. This ambivalence underscores that AI integration is not a straightforward enhancement but a complex pedagogical encounter that reshapes, rather than resolves, the challenges of contemporary teaching.

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Importantly, this study extends the conversation on AI in education into the specific context of Islamic Education, shedding light on how AI's potential and challenges manifest in a religious education setting. The participants demonstrated how AI can be aligned with cultural and religious values—for example, by carefully selecting AI-generated content to ensure it is

ethical and contextually appropriate, and by using AI to highlight Islamic perspectives in their teaching materials. This suggests that AI integration is feasible and beneficial even in content areas that require sensitivity to values and local context, provided that educators exercise critical oversight and contextualization of AI outputs (Ma & Zhao, 2024; Nguyen, 2023). The unique context of this study—pre-service Islamic Education teachers in Indonesia—also highlights that while the global trends of AI in education apply, there are additional layers of meaning when AI is used to support teaching in value-laden subjects (Munir & Majid, 2024; Nasih et al., 2024). The student teachers managed to bridge modern AI tools with the age-old content of religious teachings, indicating a successful blend of innovation with tradition.

This study expands the discourse on AI in education by examining its application within Islamic Education, illustrating how its potentials and challenges emerge in religious contexts. Through AI tools, student teachers critically assessed and curated ethical, culturally aligned content, particularly in highlighting Islamic perspectives—a process supported by Ahmad (2025), who underscores AI's transformative role in modern Islamic education. Their ability to refine AI-generated materials demonstrates the technology's value in sensitive subject areas when paired with reflective oversight (Gunder & Ford, 2025). This experience strengthened their instructional design skills and positioned them as innovative educators aligned with AI-enhanced pedagogies that integrate ethical and cultural considerations ("Digital transformations & innovations in business PG Education," 2025). These findings further emphasize the need for teacher education programs to embed AI literacy and practical training to prepare educators for ethical and contextually informed use of AI in 21st-century classrooms.

Taken together, this study contributes to the AI-in-education discourse in three significant ways. First, it extends existing research beyond performance metrics and technological adoption by illuminating the phenomenological dimension of AI use—how pre-service teachers experience, interpret, and internalize AI within their pedagogical practice. Second, it situates AI integration within a value-laden religious education context, demonstrating that AI is not merely an instructional enhancer but an identity-mediating socio-technical system that interacts with moral, cultural, and theological considerations. Third, it advances theoretical discussions of teacher professional formation by framing identity as a dynamic process of becoming shaped through human–technology interaction. For teacher education programs, these findings underscore the need to move beyond technical AI training toward cultivating ethical reflexivity and pedagogical judgment. Conceptually, the study repositions AI not as a neutral tool to be adopted, but as a transformative presence that reshapes how future teachers understand authority, engagement, and professional selfhood in the digital age.

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CONCLUSION

This study demonstrates that the use of Artificial Intelligence (AI) in instructional media design within a teaching practicum context extends beyond technical facilitation. For pre-service Islamic Education teachers, AI functioned as a socio-technical mediator that shaped not only how lessons were designed, but how professional identity was constructed and understood. Through a phenomenological lens, the findings reveal that AI integration involved a lived transition from perceived limitation to expanded capability, accompanied by increased confidence, creativity, and reflective awareness. At the same time, AI introduced new forms of ethical and pedagogical responsibility, requiring critical evaluation, contextual judgment, and value-sensitive adaptation.

Conceptually, this study contributes to AI-in-education scholarship by repositioning AI from a neutral instructional enhancer toward an identity-mediating presence within teacher formation. By foregrounding lived experience, the research highlights that technology integration in value-laden educational contexts cannot be reduced to efficiency or performance metrics alone. Instead, AI reshapes authority, engagement, and professional self-understanding through complex human–technology interaction.

Practically, the findings underscore the importance of embedding AI literacy within teacher education programs—not only as technical training, but as cultivation of ethical reflexivity and pedagogical reasoning. Future research may further explore longitudinal trajectories of identity formation, examine diverse cultural or disciplinary contexts, and investigate how AI-mediated pedagogical practices evolve over time in increasingly digital educational ecosystems.

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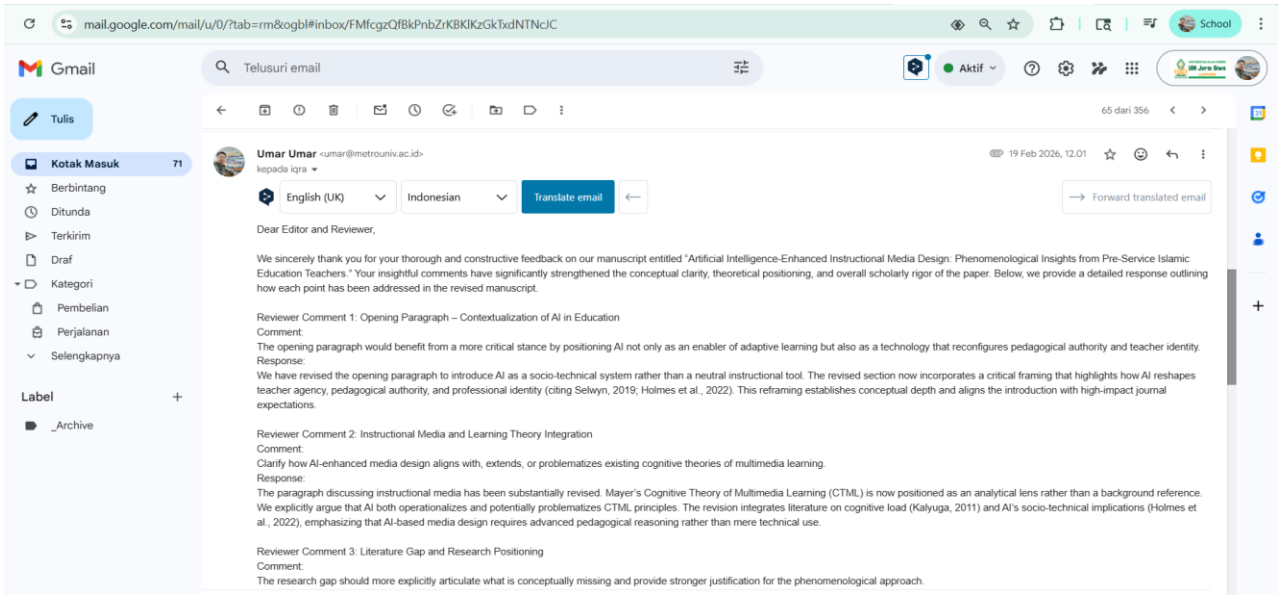
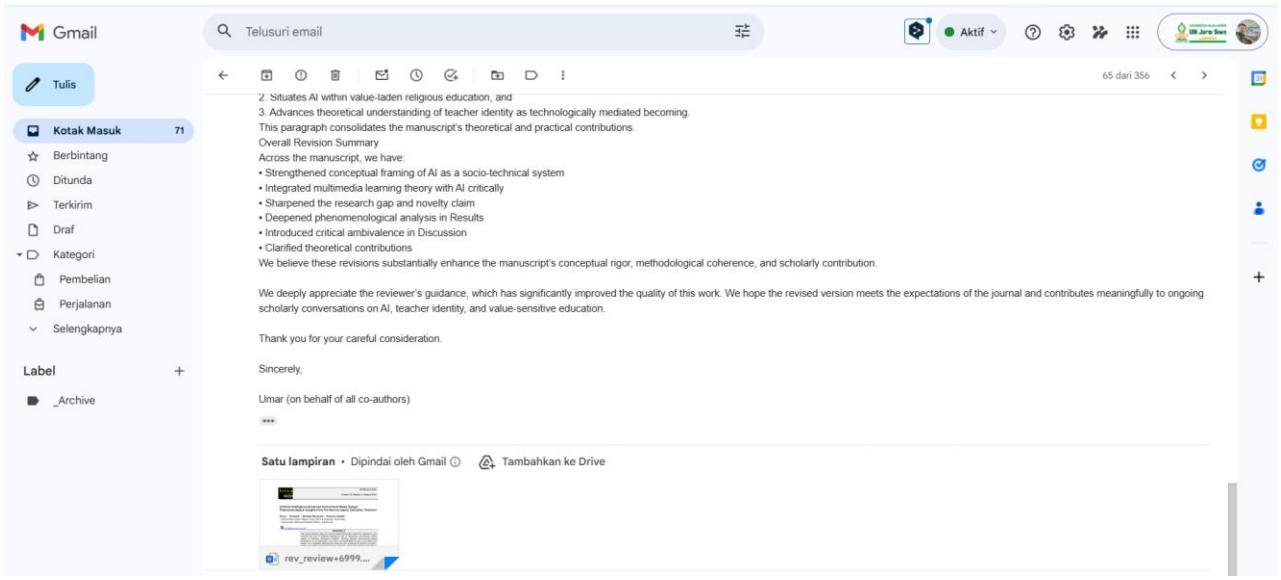
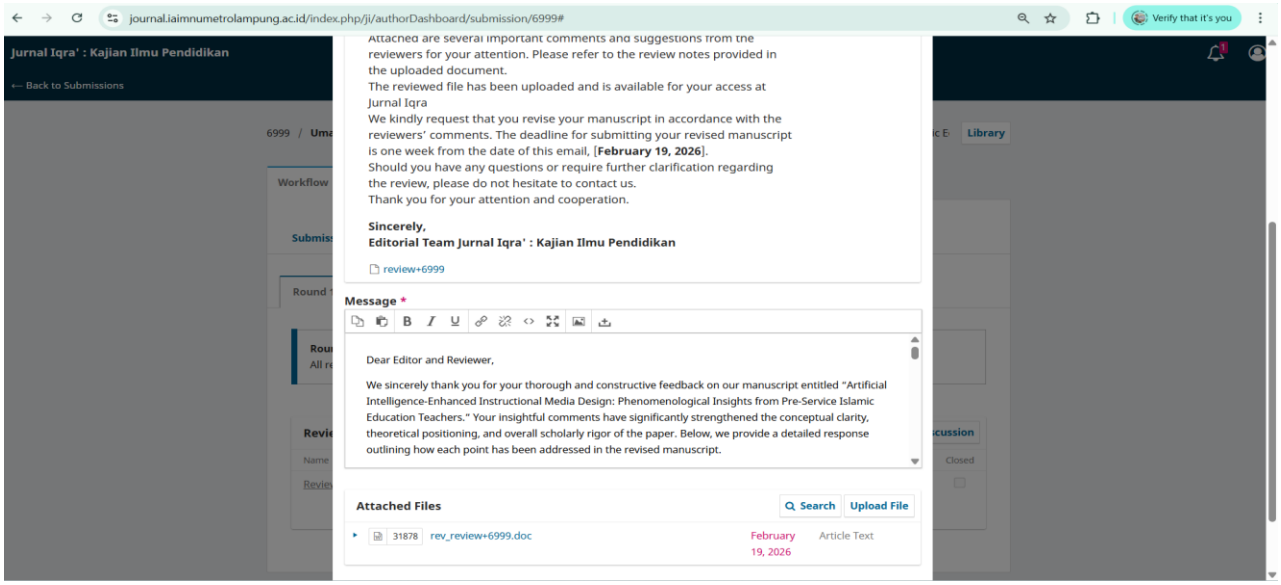
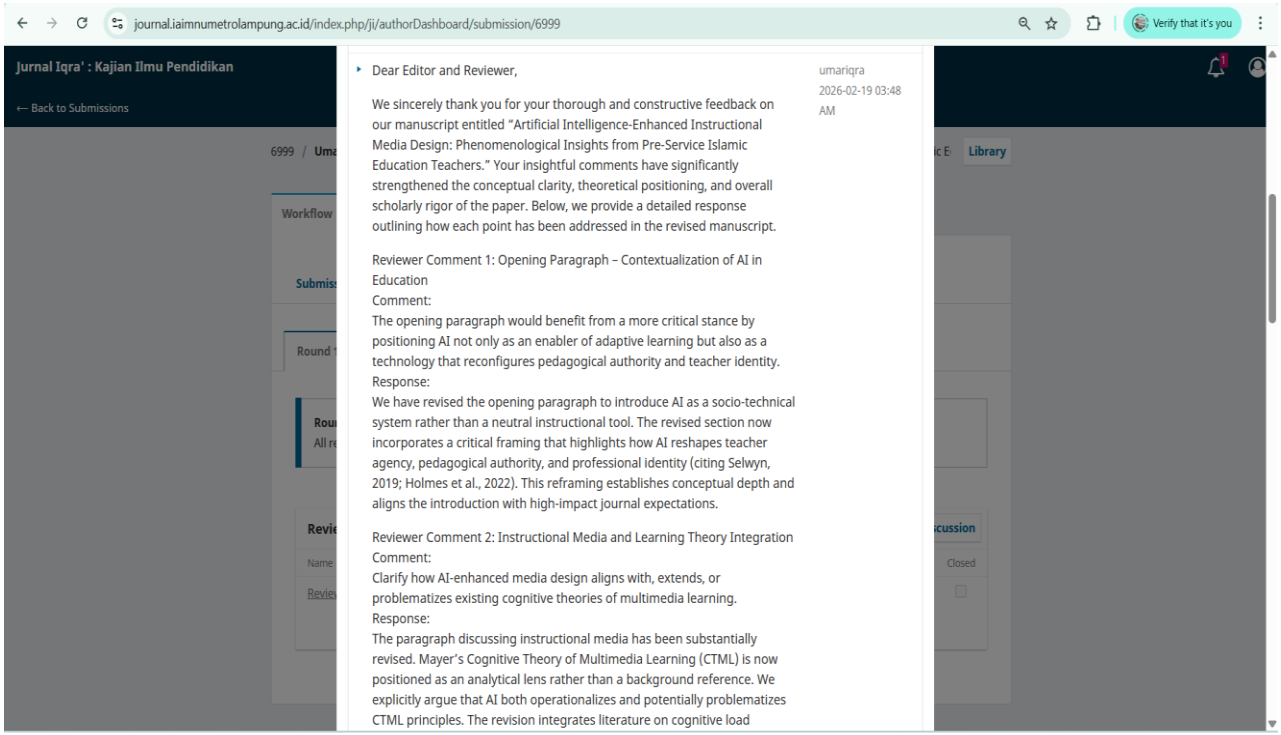
Proses pengiriman naskah hasil revisi: tanggal 19 Februari 2026

Mersepon, memperbaiki dan mengirimkan naskah hasil revisi, sesuai catatan reviewer.





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Dear Editor and Reviewer,
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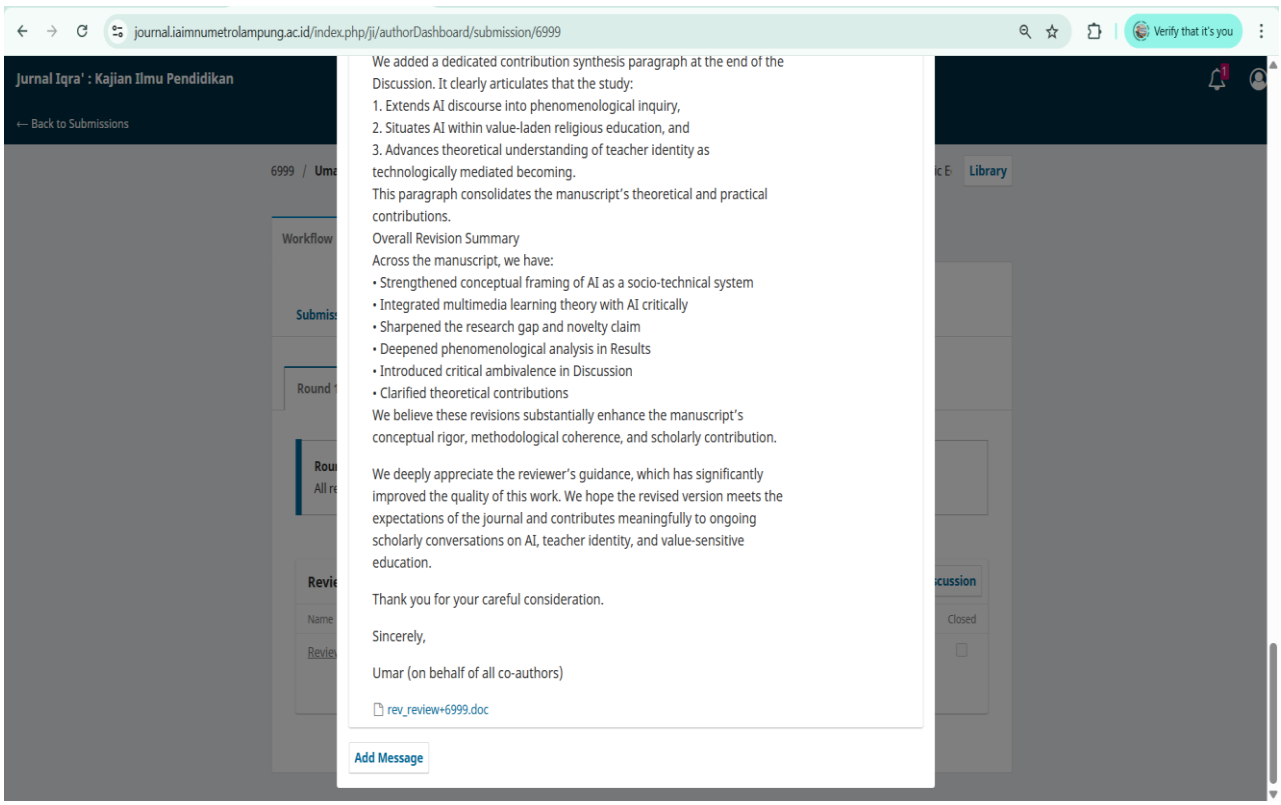
2026-02-19 03:48 AM
We sincerely thank you for your thorough and constructive feedback on our manuscript entitled "Artificial Intelligence-Enhanced Instructional Media Design: Phenomenological Insights from Pre-Service Islamic Education Teachers." Your insightful comments have significantly strengthened the conceptual clarity, theoretical positioning, and overall scholarly rigor of the paper. Below, we provide a detailed response outlining how each point has been addressed in the revised manuscript.
Reviewer Comment 1: Opening Paragraph – Contextualization of AI in Education
Comment:
The opening paragraph would benefit from a more critical stance by positioning AI not only as an enabler of adaptive learning but also as a technology that reconfigures pedagogical authority and teacher identity.
Response:
We have revised the opening paragraph to introduce AI as a socio-technical system rather than a neutral instructional tool. The revised section now incorporates a critical framing that highlights how AI reshapes teacher agency, pedagogical authority, and professional identity (citing Selwyn, 2019; Holmes et al., 2022). This reframing establishes conceptual depth and aligns the introduction with high-impact journal expectations.
Reviewer Comment 2: Instructional Media and Learning Theory Integration
Comment:
Clarify how AI-enhanced media design aligns with, extends, or problematizes existing cognitive theories of multimedia learning.
Response:
The paragraph discussing instructional media has been substantially revised. Mayer's Cognitive Theory of Multimedia Learning (CTML) is now positioned as an analytical lens rather than a background reference. We explicitly argue that AI both operationalizes and potentially problematizes CTML principles. The revision integrates literature on cognitive load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We added a dedicated contribution synthesis paragraph at the end of the Discussion. It clearly articulates that the study:
1. Extends AI discourse into phenomenological inquiry,
2. Situates AI within value-laden religious education, and
3. Advances theoretical understanding of teacher identity as technologically mediated becoming.
This paragraph consolidates the manuscript's theoretical and practical contributions.
Overall Revision Summary
Across the manuscript, we have:
• Strengthened conceptual framing of AI as a socio-technical system
• Integrated multimedia learning theory with AI critically
• Sharpened the research gap and novelty claim
• Deepened phenomenological analysis in Results
• Introduced critical ambivalence in Discussion
• Clarified theoretical contributions
We believe these revisions substantially enhance the manuscript's conceptual rigor, methodological coherence, and scholarly contribution.
We deeply appreciate the reviewer's guidance, which has significantly improved the quality of this work. We hope the revised version meets the expectations of the journal and contributes meaningfully to ongoing scholarly conversations on AI, teacher identity, and value-sensitive education.
Thank you for your careful consideration.
Sincerely,
Umar (on behalf of all co-authors)
rev_review+6999.doc
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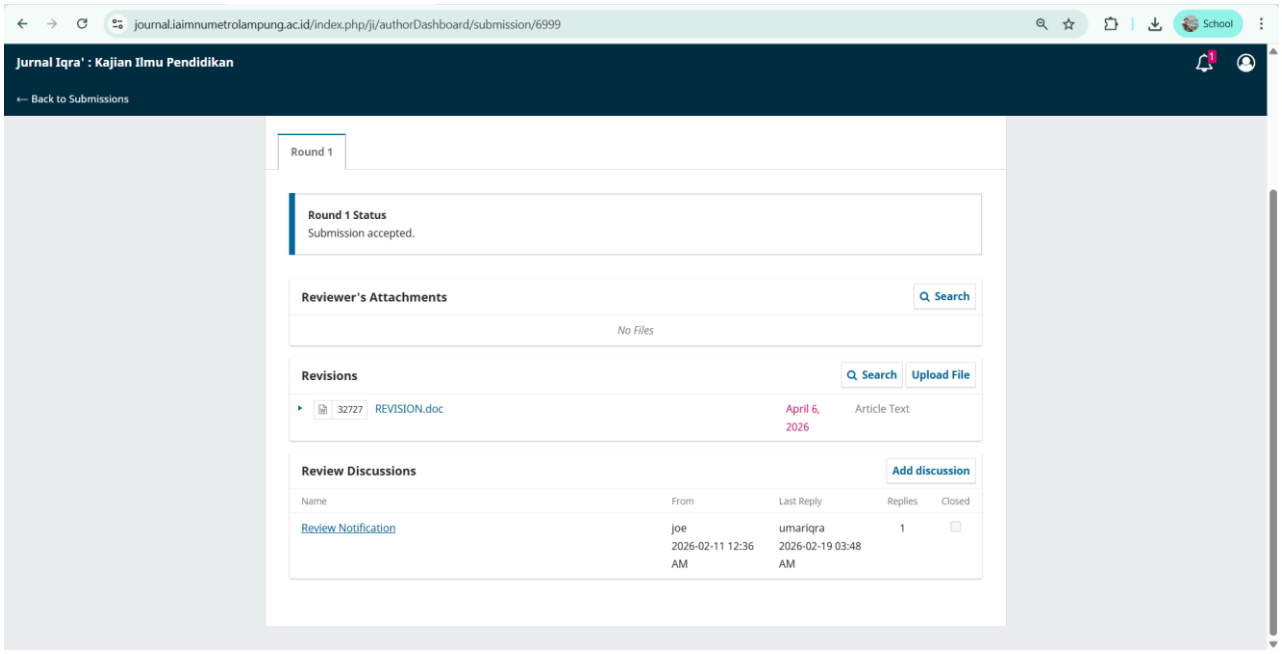
Revisi Final: tanggal 6 April 2026



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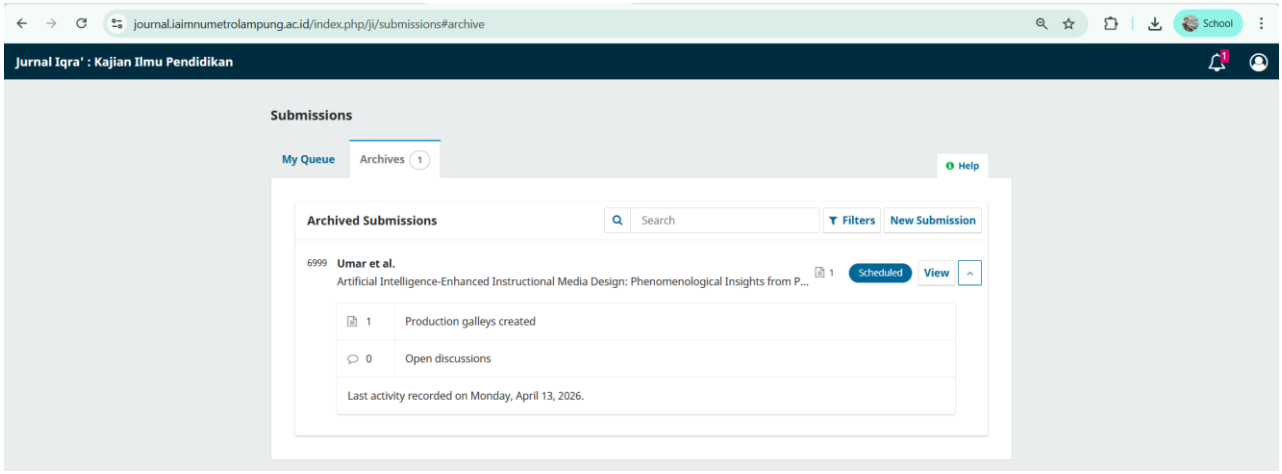

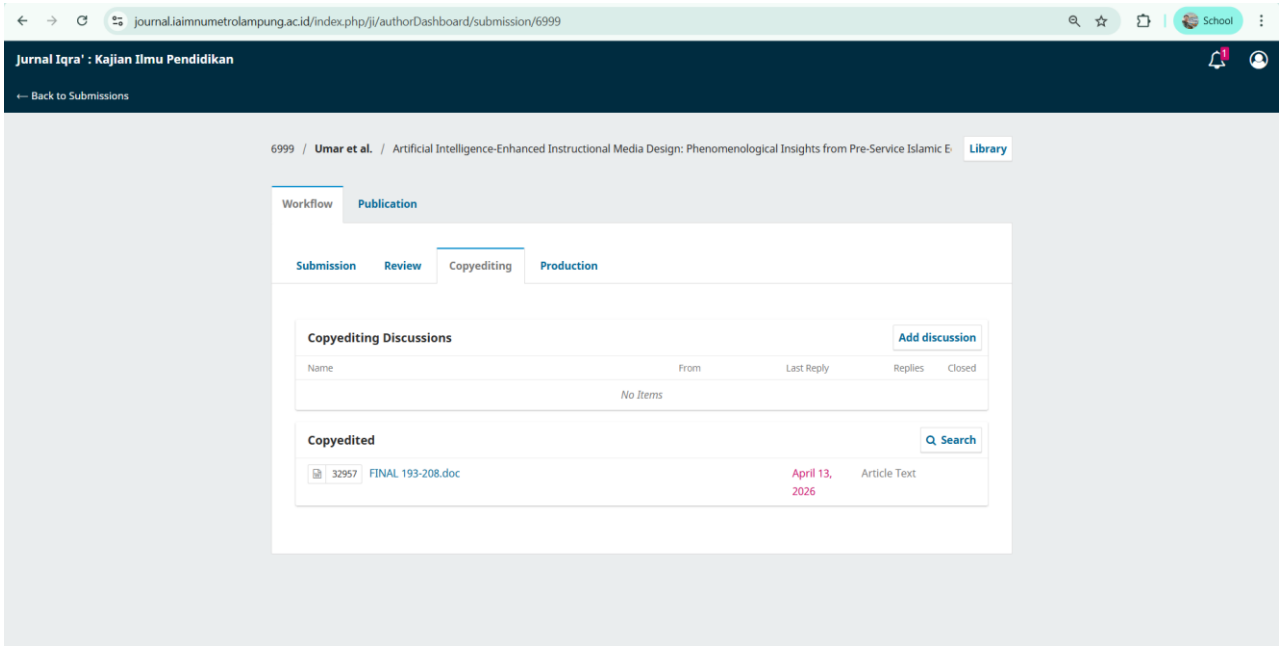

Artikel dipublikasikan: tanggal 14 April 2026