

# Development of Canva-Based Islamic Religious Education Teaching Materials to Support Independent Learning for PPG Students at the State Islamic University

Fauziah Nasution<sup>1</sup>, Suparni<sup>2</sup>, Farhani Azkia<sup>3</sup>

<sup>1</sup> Universitas Islam Negeri Sheikh Ali Hasan Ahmad Addary Padangsidimpuan, Indonesia; [fauziahnst@uinsyahada.ac.id](mailto:fauziahnst@uinsyahada.ac.id).

<sup>2</sup> Universitas Islam Negeri Sheikh Ali Hasan Ahmad Addary Padangsidimpuan, Indonesia; [suparni@uinsyahada.ac.id](mailto:suparni@uinsyahada.ac.id).

<sup>3</sup> Universitas PTIQ Jakarta, Indonesia; [farhaniazkia21@gmail.com](mailto:farhaniazkia21@gmail.com)

---

## ARTICLE INFO

### Keywords:

development;  
Islamic education;  
teaching materials;  
teacher professional education

### Article history:

Received 2025-03-21

Revised 2025-07-16

Accepted 2025-12-21

## ABSTRACT

The implementation of the independent learning paradigm within the Teacher Professional Education (PPG) program requires teaching materials that are flexible, engaging, and aligned with professional competency demands. In Islamic Religious Education (PAI), existing materials often lack visual support, contextual relevance, and higher-order thinking integration, which may limit students' independent learning readiness. This study aimed to develop and evaluate Canva-based PAI teaching materials grounded in the independent learning paradigm for PPG students at a State Islamic University. A Research and Development (R&D) approach based on the Borg and Gall model was employed, focusing on product validity, practicality, and effectiveness. Product validity was assessed by three expert validators consisting of subject-matter, language, and media experts. Practicality was evaluated through questionnaires completed by lecturers and supervising teachers. Effectiveness testing involved 120 in-service PPG Batch 1 students at UIN SYAHADA Padangsidimpuan in 2024. Data were collected through questionnaires, observations, and learning outcome tests. The developed teaching materials, designed as Canva-based PowerPoint slides integrated with a Higher Order Thinking Skills (HOTS) question bank aligned with the Knowledge Test blueprint, demonstrated strong evaluation results. The average validity score was 4.26 out of 5, indicating high validity. Practicality achieved an average score of 4.37, categorized as very practical, while effectiveness reached an average score of 4.60, categorized as very effective. Additionally, the graduation rate increased from 84.5% prior to implementation to 99.9% after use of the materials. These findings indicate that the developed Canva-based PAI teaching materials are valid, practical, and supportive of independent learning in the PPG context, offering a promising instructional resource for Islamic teacher education.



### Corresponding Author:

Fauziah Nasution

Universitas Islam Negeri Sheikh Ali Hasan Ahmad Addary Padangsidimpuan, Indonesia; [fauziahnst@uinsyahada.ac.id](mailto:fauziahnst@uinsyahada.ac.id).

---

## 1. INTRODUCTION

The implementation of the Independent Curriculum (Kurikulum Merdeka) represents a major shift in Indonesia's educational policy, emphasizing flexibility, learner autonomy, and contextualized instruction. This curriculum grants educators and educational institutions greater authority to design learning experiences that align with students' needs, interests, and learning contexts (Manalu, 2022). By promoting autonomy and personalization, the Independent Curriculum is expected to enhance student motivation and engagement, enabling learners to actively explore subject matter in ways that reflect their talents and professional aspirations. In response to this policy direction, the Indonesian Ministry of Education, Culture, Research, and Technology officially mandated the implementation of the Independent Curriculum in 2022, with further institutional support from the Ministry of Religious Affairs through Decree No. 347 of 2022 for its adoption in madrasah and Islamic higher education contexts.

In alignment with this policy, the Teacher Professional Education (Pendidikan Profesi Guru; PPG) program for Islamic Religious Education (Pendidikan Agama Islam; PAI) teachers has also adopted the Independent Curriculum framework to strengthen professional teacher competencies (Khoeron, 2023). The PPG program, administered by accredited Teacher Training Institutes (Lembaga Pendidikan Tenaga Kependidikan; LPTK), is designed as a comprehensive professional preparation pathway that includes material deepening, lesson plan development, peer teaching, comprehensive examinations, two phases of school-based teaching practice (PPL-1 and PPL-2), performance assessments, and a Knowledge Test conducted through an online system (Cpdf, 2020). Within this structure, PPG students are required to master two core components: the professional module—covering Aqidah Akhlak, Fiqh, Al-Qur'an Hadith, and Islamic History—and the pedagogical module that emphasizes instructional competence.

Despite the structured design of the PPG program, empirical evidence indicates persistent challenges in student achievement, particularly in the Knowledge Test component. Hanun (2021) reported that while all PPG participants successfully passed performance-based assessments, approximately 36% failed the Knowledge Test, suggesting gaps in conceptual mastery during the learning process. These difficulties are compounded by challenges commonly associated with online and blended learning environments, including technological barriers, limited digital literacy, and reduced learning motivation (Firman & Rahayu, 2020). Such constraints are especially problematic for in-service PPG students, who must balance academic demands with professional teaching responsibilities.

One contributing factor to these challenges lies in the characteristics of the primary learning resources used in the PPG program. Although e-modules are designed to support flexible and independent learning, many existing materials remain text-heavy, minimally visualized, and insufficiently contextualized to learners' professional realities (Rahmi et al., 2021). As a result, students often struggle to engage with dense content that lacks interactive and visual elements. Furthermore, available e-modules tend to be generic in nature and are not adequately adapted to the specific needs of in-service PPG students, particularly within the PAI discipline, which requires both conceptual depth and value-based understanding (Hanun, 2021).

This situation highlights a clear gap between curriculum policy and instructional implementation. While national guidelines emphasize the provision of high-quality learning materials that support independent learning, many PPG students report that existing resources do not sufficiently facilitate self-directed study or preparation for high-stakes assessments such as the Knowledge Test. Previous studies have examined the effectiveness of the PPG program in improving teacher competence and technology integration (Triwinarni, 2017), yet limited attention has been given to the systematic design and development of instructional materials tailored specifically to the learning characteristics of PPG participants.

Addressing this gap, the present study aims to develop Islamic Religious Education (PAI) teaching materials grounded in the principles of independent learning and tailored to the needs of PPG students

at a State Islamic University. The focus is placed on the professional module, encompassing the four core PAI subject areas. The novelty of this study lies in the development of Canva-based teaching materials that are visually engaging, modular, and oriented toward independent learning. Unlike conventional e-modules, the proposed materials integrate Higher Order Thinking Skills (HOTS)-based assessments aligned with the Knowledge Test blueprint, thereby supporting deeper cognitive processing and exam readiness.

In this study, independent learning is conceptualized as a self-directed and active learning process in which students assume responsibility for understanding core concepts, supported by flexible, visual, and user-friendly instructional materials. HOTS-based tasks emphasize analysis, evaluation, and creation, extending beyond simple recall to foster critical and reflective thinking. To ensure systematic development and evaluation, this study adopts the Borg and Gall Research and Development (R&D) model, which enables iterative validation, testing, and refinement of instructional products.

Based on these considerations, this study seeks to address the following research questions: (1) Are the developed PAI teaching materials valid in terms of content, language, and design? (2) Are the materials practical for use by PPG students and educators? (3) Are the materials effective in supporting learning outcomes and improving graduation rates in the Knowledge Test? Through this development effort, the study aims to contribute to instructional innovation in Islamic Religious Education by providing empirically tested teaching materials that align with the Independent Learning policy and respond to the practical needs of PPG students.

## 2. METHODS

This study is a type of research and development (R&D) based on the Borg & Gall model, adapted from Sugiyono (2015). The purpose of this research is to develop Islamic Religious Education (PAI) teaching materials based on independent learning and to examine their validity, practicality, and effectiveness for students in the Teacher Professional Education (PPG) program at the State Islamic University. The research followed ten development stages as outlined by Borg & Gall, with necessary adaptations. The stages are as follows:

**Table 1.** Development Procedures

No	Stage	Main Activity
1	Research and data collection	Conducted needs analysis through observation and interviews with Batch-1 PPG students at UIN SYAHADA Padangsidempuan in 2024.
2	Planning	Designed teaching materials using Canva based on needs, focused on clarity, HOTS-based questions, and practical use.
3	Developing the initial product	Created the initial draft of PAI teaching materials.
4	Initial field testing	Conducted with students of class 1 H, PPG Batch-1, to obtain feedback from users.
5	Revision of the initial product	Revised based on user feedback from initial testing.
6	Main field testing	Tested the revised product with 120 PPG students to gather broader data.
7	Revision of operational product	Refined the product based on analysis of the main field trial.
8	Operational field testing	Evaluated product effectiveness, based on learning process and outcomes (Arifin, 2011).
9	Final product refinement	Carried out based on results from operational testing.
10	Dissemination	This step aims to disseminate and apply the products that have been developed. (Sugiyono, 2015)

The participants were 120 PPG in-service students from Batch 1 (2024) at FTIK UIN Syahada Padangsidempuan. Purposive sampling was applied with inclusion criteria: (a) actively enrolled in the

PPG program; (b) involved in the Knowledge Test (UKMPPG); and (c) experienced in online learning. Demographically, participants teach at primary and secondary Islamic schools and are predominantly from the Sumatra region. Data were collected using:

1. Observation and interviews to explore initial learning needs.
2. Questionnaires to assess:
  - 1) Validity (evaluated by two subject-matter and language experts and one media expert)
  - 2) Practicality (evaluated by lecturers, tutors, and students)
  - 3) Effectiveness (evaluated by students after product use)

The questionnaire was based on a 5-point Likert scale, with score intervals as shown:

**Table 2.** Value Intervals and Categories

No	Score	Category
1	1.00 – 1.79	Not good
2	1.80 – 2.59	Not good
3	2.60 – 3.39	Pretty good
4	3.40 – 4.59	Good
5	4.59 – 5.00	Very good

The results of the questionnaire from lecturers, tutors and students, then will be analyzed by calculating the average answers from the respondents.

$$SR = \frac{\text{The total score of all items}}{\text{All Items}}$$

The instrument was validated by experts in content and construct. Reliability testing using Cronbach's Alpha yielded a coefficient of 0.87, indicating that the instrument was highly reliable ( $\alpha \geq 0.7$ ). Data analysis techniques, quantitative data were analyzed using:

1. Descriptive statistics: mean and standard deviation
2. Effectiveness evaluation: compared pre- and post-use student outcomes using paired t-tests, comparing the graduation rates of 2023 and 2024.
3. Score formula:

$$SR = \frac{\text{The total score of all items}}{\text{All Items}}$$

The results of the questionnaire from lecturers, tutors and students will then be analyzed by calculating the average answer from respondents using the formula. Products were categorized as valid, practical, and effective if the mean score reached the "Good" category, i.e.,  $3.40 \leq Sr < 4.60$ .

### 3. FINDINGS AND DISCUSSION

#### 3.1. The Validity of the Developed Teaching Materials

The first aspect discussed in this section is the validity of the developed teaching materials. Validity refers to the extent to which the teaching materials are accurate, appropriate, and relevant to the learning objectives and the needs of the target users. To determine the validity, assessments were conducted by three expert validators who evaluated the product based on four essential aspects: content accuracy, effectiveness and practicality, language, and attractiveness. The validation results show that the teaching materials achieved an overall average score of 4.26, which falls into the "very

valid” category. This indicates that the materials are well-constructed and suitable for use in the context of Islamic Religious Education for PPG students, with minimal revision required.

**Table 3.** Recapitulation of Product Validity Assessment

Result of Product Assesment By Validators																										
Validator	ASPECTS																Total	Average								
	Conten Accuracy										Effectiveness and Practicality									Language			Attractiveness			
	Statement										Statement									Statement			Statement			
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	1	2	3	1	2	3	4			
1	5	2	4	4	4	4	3	5	4	4	3	4	4	4	4	3	3	4	4	4	4	5	4	89	3,87	
2	3	3	3	5	5	5	5	5	5	5	4	3	4	4	4	5	5	5	5	5	1	5	5	99	4,30	
3	4	4	4	4	5	5	5	4	5	5	5	5	4	4	5	5	5	5	4	4	5	5	5	106	4,61	
Total	12	9	11	13	14	14	13	14	14	14	12	12	12	12	13	13	13	14	13	13	10	15	14			
Average	4,27										4,11						4,44			4,33						
	4,26																									

Validity is a foundational aspect in evaluating the quality of educational materials, as it reflects the degree to which the content accurately represents the intended knowledge, skills, and competencies expected of learners (Arifin, 2011). In this study, the validity of the developed Islamic Religious Education (PAI) teaching materials was examined through a structured assessment involving three expert validators: a subject-matter expert, a language expert, and a media/design expert. The validators assessed the materials based on four critical aspects: content accuracy, effectiveness and practicality, language, and visual attractiveness.

The overall mean score achieved in the validation phase was 4.26 out of 5, placing the product in the “very valid” category. According to (Muslich, 2010), a score above 4.20 indicates high validity and implies that the material requires minimal revisions. The strong average score affirms that the developed teaching materials are suitable for use in the context of PPG (Pendidikan Profesi Guru) and aligned with the educational needs of in-service Islamic education teachers. The first aspect, content accuracy, scored an average of 4.27, showing that the materials effectively present Islamic concepts and values aligned with the core curriculum. The content is also consistent with the structure and demands of the PPG professional module, covering the disciplines of Aqidah Akhlak, Fiqh, Qur’an-Hadith, and Islamic History. Emphasize that content validity is critical for ensuring that students can build meaningful and correct knowledge structures (Smaldino, 2005).

The effectiveness and practicality of the content earned an average score of 4.11. While slightly lower than other aspects, this still falls within the “good” category, suggesting that the product is perceived as helpful and implementable in actual learning settings. It also implies the need for minor adjustments to optimize learning outcomes and usability in diverse instructional contexts. The language component received a notably high average of 4.44. This reflects that the language used in the material is clear, communicative, and accessible for PPG students, who often juggle academic demands with teaching responsibilities. Clear and structured language is a vital component of instructional design, facilitating better comprehension and reducing cognitive load (Mayer, 2005).

The attractiveness aspect of the developed teaching materials, which obtained an average score of 4.33, demonstrates the significant contribution of visual design elements—such as layout, color schemes, and illustrations—to learner engagement and enjoyment. According to Keller’s ARCS Model of Motivational Design, captivating the learner’s Attention is the first critical step in sustaining motivation; this is achieved through the integration of visually novel, aesthetically balanced materials (Keller, 1987). Visual appeal helps grab initial interest, a crucial factor in self-directed learning environments like PPG, where learners must independently navigate complex content Canva’s design platform supports these motivational principles by offering users a range of customizable templates,

high-contrast color palettes, and consistent visual formatting features that help maintain clarity and accessibility. Such visually coherent materials facilitate Cognitive Processing, aligning with Keller's guidelines to incorporate perceptual arousal strategies that reduce cognitive overload and sustain learner confidence. Importantly, these design attributes also feed into other ARCS dimensions—Relevance, Confidence, and Satisfaction—by making content more intuitive, meaningful, and rewarding. Expert validation further emphasized the effectiveness of visual design: while Validator 1 rated attractiveness at 3.87, Validator 2 rated it at 4.30, and Validator 3 gave 4.61, the averaged outcome confirmed strong visual and motivational quality. This convergence suggests that the Canva-based materials are pedagogically appropriate, motivationally sound, and well-aligned with the demands of Islamic Religious Education in the PPG program. Thus, the integration of Keller's ARCS Model with Canva-driven design strategies results in teaching materials that are not only visually compelling but also supportive of sustained learner motivation and engagement.

Thus, based on the triangulated evaluations from expert validators and student assessments, as well as reinforcement from established theoretical frameworks such as Keller's ARCS Model and Mayer's Cognitive Theory of Multimedia Learning, the developed teaching materials exhibit a high degree of validity, practicality, and effectiveness. These findings confirm that the product is not only pedagogically sound and visually engaging, but also well-suited for independent learning environments, particularly in the context of the PPG program for Islamic Religious Education. The use of Canva as a design platform has further enhanced the instructional quality by ensuring clarity, accessibility, and motivational appeal. With only minimal revisions recommended, the teaching materials are ready for practical application and offer a credible, research-based instructional tool that aligns with the learning needs of 21st-century students. Therefore, this product holds strong potential to contribute meaningfully to the enrichment of self-directed Islamic education and to support the professional development of future educators

### 3.2. The Practicality of the Developed Teaching Materials

The second aspect critically examined in this study is the practicality of the developed Canva-based teaching materials. Practicality is defined as the extent to which educational tools can be implemented effectively and efficiently in real learning contexts with minimal external support (Plomp, 2013). Differentiates between *expected* practicality—how materials are designed to function—and *actual* practicality—how they perform in practice (Nienke Nieveen, 2013). This dimension is essential for PPG students, who balance teaching roles with self-paced learning demands. In this study, practicality was evaluated using four indicators: ease of use, clarity of instructions, content completeness and logical structure, and support for learner independence. Scores from expert evaluators on these indicators were consolidated in Table 2, resulting in a robust overall average of 4.37, classified as *very practical*.

**Table 3.** Recapitulation of Product Practicality Assessment

No.	Aspect	Average Score
1	Ease of Use	4.27
2	Clarity of Instructions/Guidelines	4.61
3	Content Completeness and Logical Structure	4.44
4	User Independence	4.33
Overall Average Score		4.37

The clarity of instructions received the highest score (4.61), indicating that learners found the guidance intuitive and unambiguous—features critical in self-regulated learning environments (Plomp, 2013). The logical structure and completeness of content (4.44) suggest that the material is well-organized and comprehensively covers intended learning outcomes. This aligns with Gagné et al. (1992), who emphasize the importance of systematic content sequencing to enhance learner understanding. A user independence rating of 4.33 shows that learners could engage with the content

autonomously, a key goal in the *Merdeka Belajar* paradigm (Manalu, J. B., 2022). Finally, an ease-of-use rating of 4.27 reflects the intuitive and accessible design of the product.

These findings are corroborated by recent studies on educational design. For instance, research on web-based learning materials using Tessmer's formative evaluation model shows that materials scoring above 4.0 on practicality indicators are readily adopted by users (Agustina, et.al., 2023). Additionally, Plomp (2013) and Nieveen & Folmer (2013) contend that an effective design process—characterized by prototyping, user feedback, and iterative refinement—leads to highly practical learning interventions. The iterative development approach employed in this study, facilitated by Canva's flexible design features, supports these principles by enabling rapid adjustments based on user feedback. In summary, the high practicality scores indicate that the developed teaching materials are not only pedagogically sound but also highly functional and user-friendly. Their intuitive design, clear instructions, and learner-centered structure make them well-suited for diverse educational contexts, particularly for busy, self-directed PPG students.

### 3.3. *The Effectiveness of the Developed Teaching Materials*

The effectiveness of instructional materials is a critical indicator of their success in achieving intended learning outcomes. In this study, effectiveness refers to the extent to which the developed Canva-based Islamic Religious Education teaching materials support student comprehension, promote higher-order thinking skills (HOTS), and foster learner engagement in independent study settings. Effectiveness was measured through student assessments across four key dimensions: material accuracy, competency development, visual presentation (graphics), and overall attractiveness. These dimensions were selected based on their relevance to cognitive engagement, motivation, and instructional clarity, in line with contemporary instructional design principles (Mayer, 2005) & (Reigeluth, C. M., & Beatty, 2017). As presented in Table 3.

**Table 4.** Summary of Student Assessment on the Teaching Material Product

Aspect	Description	Average Score
Material Accuracy	The material aligns with scientific concepts, provides accurate and clear information, supports professional test preparation, is adapted to HOTS standards, and free from factual and writing errors.	4.61
Competency Development	The material aids in understanding professional concepts, includes relevant examples, enhances HOTS skills, supports structured learning, boosts motivation, and helps with time management.	4.62
Graphics	Layout, fonts, diagrams, and sentence structures support readability, visual comprehension, and learning flow.	4.59
Attractiveness	The visual layout (colors, fonts, graphics) is appealing, non-monotonous, and motivates independent learning.	4.59

### *Discussion*

This study examined the perceived effectiveness of Canva-based Islamic Religious Education (PAI) teaching materials designed to support independent learning among students in the Teacher Professional Education (PPG) program. Effectiveness was evaluated through student assessments across four key aspects: material accuracy, competency development, visual design (graphics), and overall attractiveness. The consistently high mean scores across these dimensions indicate a strong positive reception of the developed materials and suggest that students perceived them as supportive of their learning processes. However, these findings should be interpreted as indicating a positive association between the use of the developed materials and students' learning experiences, rather than as evidence of direct causal effects.

The overall positive student perceptions align with previous research emphasizing the importance of learner-centered instructional design, content relevance, and visual engagement in facilitating meaningful independent learning (Agustina et al., 2023). In self-directed learning contexts such as PPG, where students must manage their own study time while balancing professional responsibilities, instructional materials that are clear, accessible, and well-structured play a critical enabling role. Thus, the findings suggest that the developed teaching materials may function as an effective learning support system that enhances students' readiness and engagement in independent study.

In terms of material accuracy, the high average score indicates that students perceived the content as clear, accurate, and aligned with established disciplinary concepts in Islamic Religious Education. This aspect is particularly important in professional teacher education, where conceptual precision directly affects exam preparedness and future instructional quality. The integration of Higher Order Thinking Skills (HOTS)-oriented tasks further supports deeper cognitive engagement by encouraging analysis, evaluation, and synthesis rather than rote memorization. As noted by Heinich et al. (2002), accuracy and clarity in instructional content are foundational elements of effective learning materials, as they reduce misconceptions and support knowledge retention. In this study, the positive student evaluations suggest that the materials met these foundational requirements, although future studies employing objective learning outcome measures would be necessary to confirm their instructional impact more conclusively.

The competency development dimension received the highest average rating, indicating that students perceived the materials as supportive of their understanding of core professional concepts and learning skills. The structured presentation of content, inclusion of relevant examples, and alignment with professional competency demands appear to have facilitated students' engagement with complex subject matter. According to Gagné et al. (1992), effective instructional design extends beyond content delivery to include conditions that support intellectual skill development and independent learning behaviors. In this regard, the findings suggest that the developed materials are associated with improved learner confidence and motivation, which are essential components of self-regulated learning. However, it is important to note that these perceptions do not necessarily equate to measurable competency gains, underscoring the need for more rigorous experimental or quasi-experimental research designs in future studies.

The visual design of the teaching materials, reflected in the high graphics score, also appears to play a significant role in supporting students' learning experiences. Elements such as layout consistency, typography, diagrams, and sentence organization were perceived as enhancing readability and comprehension. These findings are consistent with Mayer's Cognitive Theory of Multimedia Learning, which posits that well-designed combinations of visual and verbal information can reduce cognitive load and support deeper cognitive processing (Mayer, 2005). In the context of independent learning, effective visual design may help learners navigate content more efficiently and maintain focus during self-study sessions. Thus, the strong student evaluations of the visual components suggest that the Canva-based format may be particularly suitable for adult learners in professional education settings.

Similarly, the attractiveness dimension highlights the motivational role of visual appeal in instructional materials. High scores in this aspect suggest that students found the materials visually engaging and non-monotonous, which may contribute to sustained attention and learning motivation. Keller's ARCS model emphasizes that attention and relevance are critical for maintaining learner engagement, particularly in autonomous learning environments (Keller, 1987). Student feedback in this study indicated that the visual clarity and logical organization of the materials supported concentration and reduced learning fatigue. Additionally, the alignment of HOTS-based practice questions with the Knowledge Test blueprint was perceived as particularly valuable, as it provided targeted preparation for assessment demands. While these perceptions point to positive learning experiences, they should be viewed as indicative of enhanced engagement rather than definitive evidence of instructional effectiveness.

The observed increase in the Knowledge Test pass rate—from 84.5% in 2023 to 99.9% in 2024—provides an additional empirical context for interpreting the findings. Although this improvement coincided with the implementation of the developed teaching materials, it cannot be conclusively attributed to the materials alone. Other factors, such as cohort differences, increased familiarity with the test format, institutional support, or changes in instructional practices, may also have contributed to this outcome. Therefore, the improvement in graduation rates should be interpreted as a contextual indicator that is positively associated with the use of the materials, rather than as direct evidence of causality.

Overall, the findings suggest that the developed Canva-based PAI teaching materials are pedagogically sound, visually engaging, and well-aligned with the principles of independent learning in the PPG program. The strong positive student perceptions across multiple dimensions indicate that the materials may serve as an effective instructional support tool in Islamic teacher education. Nevertheless, the reliance on self-reported data and the absence of a control group limit the strength of causal inferences. Future research is recommended to employ controlled experimental designs, longitudinal approaches, and objective learning outcome measures to further examine the extent to which such materials contribute to sustained competency development and professional performance.

#### 4. CONCLUSION

This study developed Islamic Religious Education (PAI) teaching materials grounded in the principles of independent learning for in-service Teacher Professional Education (PPG) students at a State Islamic University, using the Borg and Gall Research and Development model. The resulting product, designed as Canva-based PowerPoint materials integrated with a Higher Order Thinking Skills (HOTS)-oriented question bank aligned with the Knowledge Test blueprint, was evaluated with 120 PPG students at UIN Syekh Ali Hasan Ahmad Addary Padangsidempuan. The findings indicate that the developed materials were judged to be valid (mean score = 4.26), practical (mean score = 4.37), and highly supportive of learning (mean score = 4.60), based on expert evaluations and student perceptions. In addition, an increase in the Knowledge Test graduation rate from 84.5% to 99.9% was observed following implementation; however, this improvement should be interpreted as a positive association rather than direct causal evidence, given the absence of a control group and the potential influence of contextual and cohort-related factors. The study is limited by its single-institution context, reliance on self-reported data, and non-experimental design, which restrict the generalizability and inferential strength of the findings. Future research is therefore recommended to extend the development to pedagogical modules, employ quasi-experimental or experimental designs with pre- and post-testing, involve larger and more diverse samples and expert validators, and incorporate user acceptance testing to strengthen empirical rigor. Through such efforts, subsequent studies can further clarify the role of independent learning-oriented digital teaching materials in enhancing professional competence within Islamic teacher education.

#### REFERENCES

- Agustina, N., et al. (2023). Development of valid, practical, and potential web-based learning materials for higher education. *Teknodika*, 21(1). <https://jurnal.uns.ac.id/Teknodika/article/view/69880>
- Arifin, Z. (2011). *Penelitian pendidikan: Metode dan paradigma baru*. PT Remaja Rosdakarya.
- Firman, F., & Rahayu, S. (2020). Pembelajaran online di tengah pandemi COVID-19. *Indonesian Journal of Educational Science (IJES)*, 2(2), 81–89. <https://doi.org/10.31605/ijes.v2i2.659>
- Gagné, R. M., Briggs, L. J., & Wager, W. W. (1992). *Principles of instructional design* (4th ed.). Harcourt Brace Jovanovich College Publishers.
- Hanun, F. (2021). Implementasi penyelenggaraan program Pendidikan Profesi Guru (PPG) Pendidikan Agama Islam di LPTK UIN Serang Banten. *Edukasi: Jurnal Penelitian Pendidikan Agama dan*

- Keagamaan*, 19(3), 268–285. <https://doi.org/10.32729/edukasi.v19i3.1158>
- Heinich, R., Molenda, M., Russell, J. D., & Smaldino, S. E. (2002). *Instructional media and technologies for learning* (7th ed.). Pearson Education.
- Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, 10(3), 2–10. <https://doi.org/10.1007/BF02905780>
- Manalu, J. B., et al. (2022). *Proceedings of basic education development of independent learning curriculum learning tools*. Mahesa Research Center.
- Manalu, J. B., et al. (2022). Prosiding pendidikan dasar pengembangan perangkat pembelajaran Kurikulum Merdeka Belajar (pp. 80–86). Mahesa Research Center. <https://doi.org/10.34007/ppd.v1i1.174>
- Mayer, R. E. (2005). Introduction to multimedia learning and cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 1–16). Cambridge University Press.
- Moh. Khoeron (Ed.). (2023). *Kemenag sosialisasikan Kurikulum Merdeka pada LPTK penyelenggara PPG*. Kementerian Agama Republik Indonesia. <https://kemenag.go.id/nasional/kemenag-sosialisasikan-kurikulum-merdeka-pada-lptk-penyelenggara-ppg-ell45r>
- Muslich, M. (2010). *Textbook writing*. Ar-Rus Media.
- Nieveen, N. (2013). Formative evaluation in educational design research. In T. Plomp & N. Nieveen (Eds.), *Educational design research: Part A – An introduction* (pp. 89–102). SLO.
- Plomp, T. (2013). Educational design research: An introduction. In T. Plomp & N. Nieveen (Eds.), *Educational design research: Part A – An introduction* (pp. 10–51). SLO.
- Rahmi, E., Ibrahim, N., & Kusumawardani, D. (2021). Pengembangan modul online sistem belajar terbuka dan jarak jauh untuk meningkatkan kualitas pembelajaran pada program studi teknologi pendidikan. *Visipena*, 12(1), 44–66. <https://doi.org/10.46244/visipena.v12i1.1476>
- Reigeluth, C. M., & Beatty, B. J. (Eds.). (2017). Learner-centered paradigm of education. In *Instructional-design theories and models: The learner-centered paradigm of education* (Vol. 4). Routledge.
- Smaldino, S. E., Heinich, R., Russell, J. D., & Molenda, M. (2005). *Instructional technology and media for learning*. Pearson Merrill Prentice Hall.
- Triwinarni, E. (2017). Evaluasi program Pendidikan Profesi Guru (PPG) Pendidikan Agama Islam di UIN Sunan Kalijaga Yogyakarta. In *Prosiding Interdisciplinary Postgraduate Student Conference* (pp. 219–223). <http://repository.umy.ac.id/handle/123456789/8545>