

# Strengthening Islamic Religious Education Teacher Competencies in the Society 5.0 Era: Challenges and Interventions

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## ABSTRACT

The Society 5.0 era brings significant changes to various aspects of life, including education. Islamic Religious Education (PAI) teachers play a vital role in shaping students' character, ensuring they can control technology's negative influences and use it positively. This study aims to identify the challenges faced by PAI teachers in the Society 5.0 era and evaluate the strengthening of their competencies through the PAI Subject Teachers' Deliberation (MGMP) in Kutai Kartanegara, focusing on artificial intelligence (AI) integration. A qualitative case study approach was employed, with goal-setting theory guiding the intervention in a teacher training program. Data were collected through in-depth interviews with PAI teachers, participatory observation, and analysis of teaching materials produced during the training. The intervention involved AI-based applications like Google Docs' AI writing assistant for lesson planning and AI-driven tools for evaluating student performance. Thematic analysis was used to identify key patterns and themes regarding the challenges and opportunities in strengthening teacher competencies. The results showed that AI training improved the effectiveness and efficiency of teaching materials, which was marked by more interactive content, shorter preparation times, and better alignment with student needs. Additionally, there was a significant increase in student engagement during lessons, highlighting the success of AI technology in enhancing the learning process.

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## 1. INTRODUCTION

Society 5.0, initially introduced by the Japanese government, is a concept that envisions an intelligent society where physical space and cyberspace are deeply intertwined (Nastiti & Abdu, 2020). This concept aims to tackle various global challenges faced by humanity and is expected to bring about significant changes in multiple facets of life, including education (Juhanaini et al., 2025). As technology, particularly artificial intelligence (AI), continues to advance, educators are confronted with new challenges in ensuring that this technology is harnessed effectively in the teaching and learning processes (Asmuki & Hasanah, 2020).

In the context of Islamic Religious Education (PAI), this challenge becomes increasingly intricate. PAI teachers bear the responsibility not only of imparting religious values, but also of shaping students' character in a manner that enables them to navigate the negative influences of technology and utilize it judiciously (Hakeu & Djahuno, 2024). While there is existing research addressing the role of technology in education, there is a dearth of studies focused on developing the competencies of PAI teachers to thrive in the Society 5.0 era (Hafizon & Amril, 2023). Most of the current literature primarily delves into the technical aspects of technology integration, without adequately considering how teachers, particularly in the field of PAI, can adapt to their evolving roles in an era increasingly dominated by AI (Muhammad Nasikin, Umar Fauzan, & Noor Malihah, 2023). The objective of this study is to bridge this gap by identifying the challenges faced by Islamic Religious Education teachers in the Society 5.0 era and evaluating efforts aimed at enhancing their competence through MGMP Islamic Religious Education in Kutai Kartanegara. This focus is crucial because Islamic Religious Education teachers play a pivotal role in guiding students to not only comprehend, but also apply religious values in their daily lives, which are now increasingly shaped by technology. Thus, this study is expected to make a significant contribution to the development of Islamic Religious Education teacher competence to meet the demands of the Society 5.0 era.

Society 5.0 is a concept of a human-centered and technology-based society, where technology plays a central role in meeting individual needs quickly and precisely. This era is characterized by deep integration between humans and technology, covering various aspects of life, including education. With ever-evolving technology, Society 5.0 presents new challenges and opportunities, especially in the context of education, where the ability to adapt and utilize technology, such as Artificial Intelligence (AI), is becoming increasingly important (Kamal & Khair, 2024).

Artificial intelligence (AI) has been applied in various educational contexts to personalize learning, provide rapid feedback, and increase the accessibility of education. According to (Luckin, Holmes, Griffiths, & Forcier, 2016), AI enables the creation of adaptive learning environments that can adjust teaching materials to the abilities and needs of each student. AI is also used to automate assessments, such as grading essays or text-based assignments (Baum, Payton, & Mitra, 2021). In addition, AI can help teachers monitor student performance in real-time and provide data analysis that helps in making learning decisions (Holmes, 2019).

One of the broad applications of AI is intelligent tutoring systems (ITS), which can provide personalized learning experiences without the physical presence of a teacher (Kulik & Fletcher, 2016). ITS uses AI algorithms to provide adaptive feedback to students based on their performance, thereby increasing the effectiveness of self-paced learning. In addition, AI is also used in language learning with natural language processing to detect and correct students' language errors (Zawacki-Richter, Marín, Bond, & Gouverneur, 2019).

Education, particularly Islamic Religious Education (PAI), is undergoing a significant transformation in the face of the Society 5.0 era. Digital technologies, such as video conferencing, virtual reality, and AI, have revolutionized the teaching paradigm, shifting from face-to-face classroom instruction to broader digital teaching without physical limitations (Handayani, Badriah, & Erihadiana, 2022). However, this change also presents a major challenge for PAI teachers, who must develop new competencies in digital literacy and the use of technology to create effective and relevant teaching materials. Artificial Intelligence (AI) has emerged as a crucial tool that Islamic Religious Education teachers can leverage to enhance the quality of learning and adapt to rapid changes in this era (Fadhililah et al., 2023).

On the other hand, the challenges faced by Islamic Religious Education teachers in adopting artificial intelligence (AI) differ from those encountered in other educational domains due to the unique nature of religious learning content, which encompasses spiritual and ethical values that must be harmoniously integrated with technological advancements. According to (Hadad, Santoso, Besar, & Rulina, 2004), one of the primary difficulties lies in ensuring that the application of technology, such as AI, preserves spiritual significance and does not solely emphasize cognitive outcomes. Additionally,

Islamic Religious Education teachers may encounter limitations in digital literacy or technological proficiency necessary for effectively utilizing AI in the educational process, as noted by (Aoun, 2017) in the literature concerning technological literacy in education. Integration of AI in Islamic Religious Education: Furthermore, the implementation of AI within Islamic Religious Education requires careful consideration of the balance between ethical and pedagogical dimensions. For instance, AI-based teaching assistants can facilitate additional explanations or aid students in comprehending religious texts. However, educators must critically evaluate the extent to which AI can be employed without supplanting the personal interactions that are vital to the process of religious learning (Mubin, Arsath, & Rauf, 2022).

Nevertheless, Islamic Religious Education teachers face complex challenges in integrating this technology into the learning process. Despite the various opportunities, the competency gap in mastering technology, especially AI, poses a significant obstacle. In this context, it is crucial to examine how the strengthening of Islamic Religious Education teachers' competencies (Wati, Ernita, Ristiliana, & Lubis, 2023), particularly in the field of AI, can be optimized to confront the Society 5.0 era (Setyadi & Helmi, 2022). This study aims to investigate the effectiveness of strengthening the competencies of Islamic Religious Education teachers at MGMP PAI Kutai Kartanegara in utilizing AI as an effort to address the challenges in the Society 5.0 era (Yuliah, 2021).

Against this backdrop, this study aims to address questions regarding the effective implementation of strategies to strengthen AI competencies for Islamic Religious Education teachers and the impact it has on the quality of Islamic religious education in the Society 5.0 era.

## 2. METHODS

This study uses a qualitative design that combines three main approaches: phenomenology, grounded theory, and ethnography. The phenomenological approach was chosen to explore the in-depth experiences of Islamic Religious Education (PAI) teachers in an effort to improve their competence in the Society 5.0 era. The phenomenological approach not only aims to explore the subjective experiences of PAI teachers in improving their competence, but also focuses on how they interpret and interpret these experiences. You can explain that this study uses in-depth interviews to explore teachers' perceptions, emotions, and beliefs about the integration of AI in the teaching and learning process. Phenomenology allows researchers to understand the "life reality" of PAI teachers in facing the challenges of the Society 5.0 era and how they view technology as a tool in religious education. Through participant observation, researchers aim to understand how these teachers feel and interpret the process of improving their competence, as well as how they overcome challenges related to the integration of technology, especially AI, into their teaching practices (Sada, 2017). This experience is expected to provide an overview of the perceptions and experiences of PAI teachers in the field.

The grounded theory approach is used to build theory based on the data collected. Through an inductive process, researchers analyze data systematically and continuously to identify emerging patterns, categories, and concepts. The abstract theory obtained from this approach will describe the procedures, actions, or interactions that occur in the context of improving the competence of Islamic Religious Education teachers, especially in the utilization of AI (C. W. Kartiwan, Alkarimah, & Ulfah, 2023). Thus, grounded theory offers a solid theoretical foundation based on participant perspectives and empirical data collected. In addition, an ethnographic approach is applied to explore and understand the culture of competency strengthening that is developing in schools. Researchers conduct in-depth cultural studies through participant observation, interviews, and direct involvement in the strengthening process. This approach allows researchers to understand the social context, values, and norms that influence the strengthening of Islamic Religious Education teachers' competence in utilizing technology in the Society 5.0 era (Aladdiin & Ps, 2019). Grounded theory not only aims to build theory from data but also to develop concepts that are directly related to teachers' experiences. In this study, the grounded theory approach can be further deepened by explaining the data coding process which is open, axial, and selective. Thus, you can highlight that the theory generated from this study is a

representation of the interactive process between PAI teachers and technology, especially AI, in the context of competency strengthening. Further details on how categories and patterns found from the data contribute to the theory of competency strengthening can also be added.

This ethnography elucidates the implementation of competency strengthening within a school environment, taking into account pertinent cultural factors. Data for this study were gathered through a variety of methodologies, including in-depth interviews, focus group discussions, and participant observation. Within the ethnographic framework, it is essential to elaborate that participant observation was employed to capture the cultural dynamics that shape teachers' attitudes and behaviors throughout the competency strengthening process. Moreover, the researchers' active involvement in competency strengthening activities, such as artificial intelligence (AI) training, facilitated the observation of social interactions among Islamic Religious Education teachers. This aspect provides a comprehensive understanding of the norms and values that affect the acceptance and implementation of technology within the context of school culture.

In-depth interviews were conducted with Islamic Religious Education teachers to acquire a holistic understanding of their experiences regarding the AI competency strengthening initiative. These interviews were meticulously designed to explore the perspectives, beliefs, and challenges encountered by the teachers concerning the integration of technology in educational settings. Focus group discussions were utilized to deepen the analysis of the group dynamics that emerged during the competency strengthening process. The data collection techniques incorporated detailed descriptions of the interview structure and the format of group discussions.

The data analysis adhered to the tripartite framework of Miles and Huberman's interactive analysis model, encompassing data reduction, data presentation, and conclusion drawing. During the data reduction phase, researchers employed coding techniques to distill the most pertinent information. In the data presentation stage, principal findings were organized in matrix or diagrammatic form to visualize the interconnections among concepts. The final stage of drawing conclusions involved correlating empirical findings with the grounded theory developed, with definitive conclusions being drawn following a thorough data verification process. Data analysis in this investigation was conducted interactively, employing the interactive analysis model proposed by (Matthew B. Miles, 2014). The analytical process commenced with data collection, which was subsequently coded, interpreted, and analyzed in an iterative manner. Each dataset was continuously analyzed until a saturation point was reached, defined as the juncture at which the collected data ceased to yield new or significant insights (Badry & Rahman, 2021b). This analytical approach necessitated that researchers persistently pose critical inquiries such as "why," "what is the rationale," and "how did it transpire" in order to attain a profound understanding of the phenomenon under investigation (Wulogening & Timan, 2020).

This study was conducted in accordance with ethical standards governing qualitative research (Rahmawati, Bungsu, Islamiah, & Setiawan, 2019). Prior to data collection, all participants were provided with explicit information regarding the study's purpose, the procedural steps involved, and the intended use of their data. Participants were solicited to provide written consent for their involvement in the study. The confidentiality of participants' identities was assured, and the collected data were securely maintained to uphold participant privacy. Throughout the research process, the researcher endeavored to avoid causing discomfort or adverse effects on the participants, who retained the right to withdraw from the study at any moment without facing any repercussions.

### 3. FINDINGS AND DISCUSSION

#### *3.1 Challenges faced by Islamic Religious Education (PAI) teachers in the Society 5.0 Era*

Enhancing the competencies of Islamic Religious Education teachers in State Senior High Schools in East Kalimantan is crucial for effectively addressing the challenges posed by the Society 5.0 era. This study aims to investigate the effectiveness of competency enhancement, particularly through the integration of Artificial Intelligence (AI) technology in the educational process. The findings presented

herein are directly aligned with the objectives of the study, specifically to understand the challenges encountered by Islamic Religious Education teachers and to identify factors that influence the successful enhancement of competencies within the context of the Society 5.0 era. The analysis reveals that the competency enhancement process serves not only to improve technical skills but also to shape teacher behavior and attitudes. By comprehending the challenges faced, these findings offer valuable insights into optimizing the competency enhancement process to support Islamic Religious Education teachers in effectively adapting to and utilizing AI. Consequently, these findings contribute directly to achieving the study's objectives, namely the strengthening of teacher competencies to enable them to navigate the Society 5.0 era effectively. This process of habituation must be complemented by actions and activities that align with the intended goals.

In the context of behavior analysis and target conditioning, there exists a method for increasing the frequency or likelihood of behavior through reinforcement administered directly or immediately after the behavior has occurred. According to Skinner, reinforcement consists of four distinct approaches: positive reinforcement, negative reinforcement, extinction, and punishment. The application of Skinner's theory to competency enhancement delineates a clear consequence for failure, while Islamic Religious Education teachers are afforded reinforcement to facilitate a learning process that enhances student comprehension (Sinulingga, Hasibuan, Kasih, Widiyaningsih, & Marpaung, 2022).

Islamic Religious Education teachers in East Kalimantan, similar to those in various other regions of Indonesia, may encounter limitations regarding access to adequate technological devices and infrastructure. Numerous schools in remote areas lack stable internet access, sufficient hardware, or other necessary technological support facilities (Rachmawati & Mukti, 2020). This represents a significant challenge, particularly as teachers are expected to leverage AI in their instructional practices. Such obstacles complicate efforts to enhance competencies, as teachers must navigate limited infrastructural conditions while simultaneously being expected to utilize advanced technology. Connecting the research findings to (Kothari, Ramanna, & Skinner, 2010) B.F. Skinner's behaviorism theory enriches the analysis further. Operant conditioning theory underscores the significance of reinforcement in shaping behavioral patterns. Within the framework of competency enhancement, the provision of positive reinforcement, such as awards or recognition for teachers' efforts in adopting technology, can serve to motivate educators to persist in their learning and development endeavors (Sinulingga et al., 2022). Conversely, the scarcity of technological support or resources can manifest as a form of "punishment" or obstacle, thereby diminishing teachers' motivation to innovate.

Limited technological knowledge among Islamic Religious Education teachers frequently represents a significant barrier to the effective integration of artificial intelligence (AI) in educational practices. Reflections derived from the findings of this study suggest that initiatives aimed at enhancing teacher competence must encompass technology training that is both pertinent to the Islamic Religious Education curriculum and responsive to the specific needs of educators. It is essential not only to improve technical skills but also to cultivate a more profound understanding of how AI can be employed to impart religious values that are intrinsically spiritual in nature (A. Kartiwan, Alkarimah, & Ulfah, 2023). Skinner posited that reinforcement can augment the frequency of desired behaviors. In this framework, positive reinforcement manifested as recognition or support from educational institutions for teachers' endeavors to incorporate technology can facilitate sustained behavioral change. Conversely, if educators perceive themselves as constrained by inadequate technological resources or infrastructure, this can engender an adverse effect, leading to a reluctance to embrace technological advancements (Sinulingga et al., 2022).

### ***3.2 Enhancing the Competence of Islamic Religious Education (PAI) Teachers***

The process of enhancing the competence of Islamic Religious Education (PAI) teachers in State Senior High Schools in East Kalimantan consists of three main stages. Each stage is designed to enable teachers to effectively adapt to and utilize Artificial Intelligence (AI) technology in creating teaching

materials and fulfilling other teaching functions. The following provides a more detailed explanation of each stage, along with its specific objectives and outcomes:

### 3.2.1 Stage One: Identification of AI Utilization Competence

The first stage of this enhancement process focuses on identifying the competence of PAI teachers in utilizing AI within the MGMP PAI environment of Kutai Kartanegara High School. The main objective of this stage is to obtain an initial understanding of the teachers' level of knowledge and skills in using AI for teaching purposes. The identification process involves distributing questionnaires to all PAI teachers in State Senior High Schools in East Kalimantan (Malasari & Yulisatria, 2023). The results of this questionnaire provide important baseline data to identify existing competency gaps and training needs. The findings from this stage serve as the foundation for designing a more focused and tailored enhancement program.

As part of the first stage in the competency-strengthening process, a questionnaire was distributed to Islamic Religious Education teachers at MGMP Islamic Religious Education of Kutai Kartanegara High School to identify the level of familiarity and utilization of AI in teaching. The following table summarizes the results of the questionnaire, which included questions on basic understanding of AI and its use in educational contexts.

**Table 1.** The Results Of The Questionnaire For The MGMP PAI Islamic Religious Education Teacher at Kutai Kartanegara High School

Questionnaire Questions	Percentage of Teachers Who Answered "Yes"
Are you familiar with AI?	40%
Do you often use AI?	25%
Do you know what an AI text generator is?	30%
Do you know AI image generator?	20%
Is aware of OpenAI Chat GPT	15%
Are you familiar with Copilot AI?	10%
Is aware of Gemini AI	5%
Do you know how to install Add On / Add in AI in Document Editor?	10%

The results of this questionnaire show that only 40% of teachers are familiar with the basic concepts of AI, and only 25% frequently use AI in their teaching practices. Lower percentages are seen in questions related to understanding AI text generators (30%) and AI image generators (20%). In addition, only 15% of respondents are familiar with OpenAI Chat GPT, while familiarity with other AI tools such as Copilot AI and Gemini AI is very low, only 10% and 5%, respectively. These data clearly show a significant gap in the knowledge and use of AI among Islamic Religious Education teachers in Kutai Kartanegara. This lack of familiarity indicates the need for more intensive competency strengthening and focusing on the introduction and use of AI tools in education. These results also support the conclusion that to face the challenges in the Society 5.0 era, a substantial increase in teachers' digital literacy is needed, especially in mastering AI technology that is relevant to teaching. Thus, the data from this questionnaire not only provides an initial picture of the existing level of competency, but also emphasizes the importance of the strengthening stages designed in this study. A strengthening process that includes training and mentoring in the use of AI is essential to bridge the identified gaps.

From the initial identification above, a conclusion can be drawn that the use of AI has been used but not to its maximum use and is only limited to *testing* use. Next, in the first stage, after knowing the current competency of PAI teachers towards AI, a strengthening schedule is made as in the section below.

### 3.2.2 Second stage: Development and Implementation of Enhancement Programs

The second stage focuses on the development and implementation of competency enhancement programs. After identifying the competency gaps, specific training programs are designed to improve

the teachers' ability to utilize AI, particularly in creating relevant and effective teaching materials. The main objective of this stage is to enhance the teachers' technical skills, introduce them to AI tools and applications, and train them on the optimal utilization of this technology in the teaching process. This enhancement program includes workshops, training sessions, and direct mentoring, with the expected outcome of significantly increasing the skills and confidence of PAI teachers in using AI.

Based on the schedule that has been made and agreed upon, the above strengthening process can create a table regarding the need to strengthen AI at MGMP PAI SMA in Kutai Kartanegara.

**Table 2.** Regarding The Need For Strengthening AI At MGMP PAI SMA In Kutai Kartanegara

No	AI name	Name	Type
1	OpenAI	ChatGPT	Text generator 3.5 and Image 4.0 (no free version available for Image 4.0)
2	Google	Gemini	Text generator (no free image version available)
3	Microsoft	Copilot	Text and image generator (free version available with limited usage limit per day)
4	Add-Ins	GPT Workspace	Text Generator and Image Integration in Word Processors (available free version which is integrated with word processing applications, for images limited use per day)

From the strengthening carried out at MGMP PAI SMA Kutai Kartanegara with some of the material provided is the application in points 1-3 which can be used directly through a browser and to enter it into a word processor, either Google Documents or Microsoft Word, using *copy*. and *paste* ( *paste* ). Although using this application is interactive, it requires time to simply *copy* and *paste*, which in the end requires teachers to take several additional steps to use it.

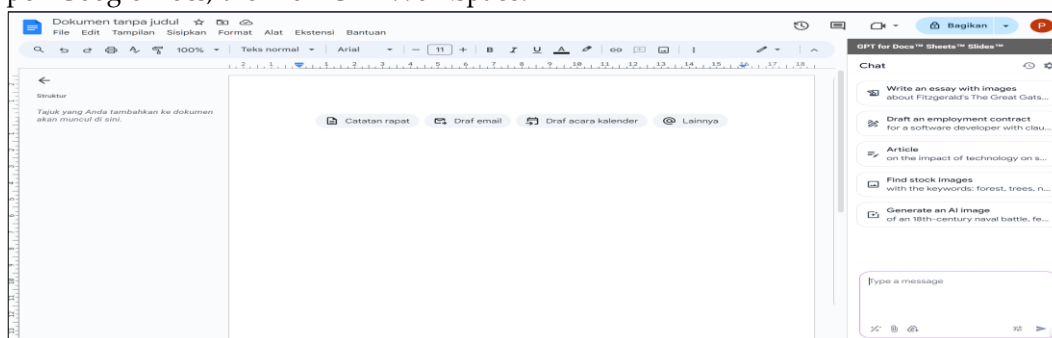
**3.2.3 Stage Three: Evaluation and Adjustment** The final stage of the enhancement process involves evaluation and adjustment

After implementing the enhancement program, a comprehensive evaluation is conducted to assess the effectiveness of the provided training. The purpose of this stage is to measure the extent to which the enhancement program has succeeded in improving teacher competence and identify areas that may require further improvement or development. This evaluation is carried out through tests, interviews, and observations, followed by necessary program adjustments. The results of this stage provide valuable feedback to continuously improve and adjust the enhancement program to meet the needs of teachers in the Society 5.0 era.

At this stage, the aim is to carry out more applicable strengthening in creating teaching materials equipped with images and other symbols using AI which has been integrated with word processors/document editors, both Microsoft Word and Google Documents (Jubba, Awang, & Sungkilang, 2021). The application chosen for this stage is GPT Workspace which is integrated with Google Docs

Strengthening using this application directly by running the Microsoft Word or Google Documents application.

1. Open Google Docs, then run GPT Workspace.



**Figure 1.** Google Docs

There are several options viz

- 1) Write an essay with images is to create an essay by including images
  - 2) Article means creating an article or other text
  - 3) Generate an AI image, which is used to create caricatures or other images
2. The settings for the language settings and artificial intelligence base used are as shown in the image below Select Indonesian

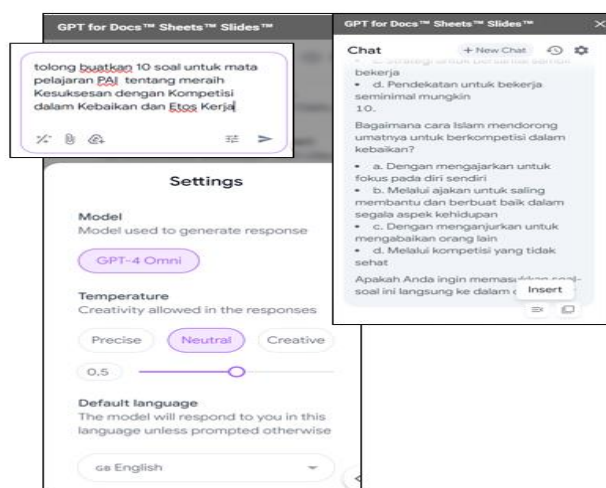


Figure 2. Step Two

3. Give The Command To *The Type A Message Section* In The Example Box  
Then click insert and all the results will go directly to the Google Documents worksheet as shown below:

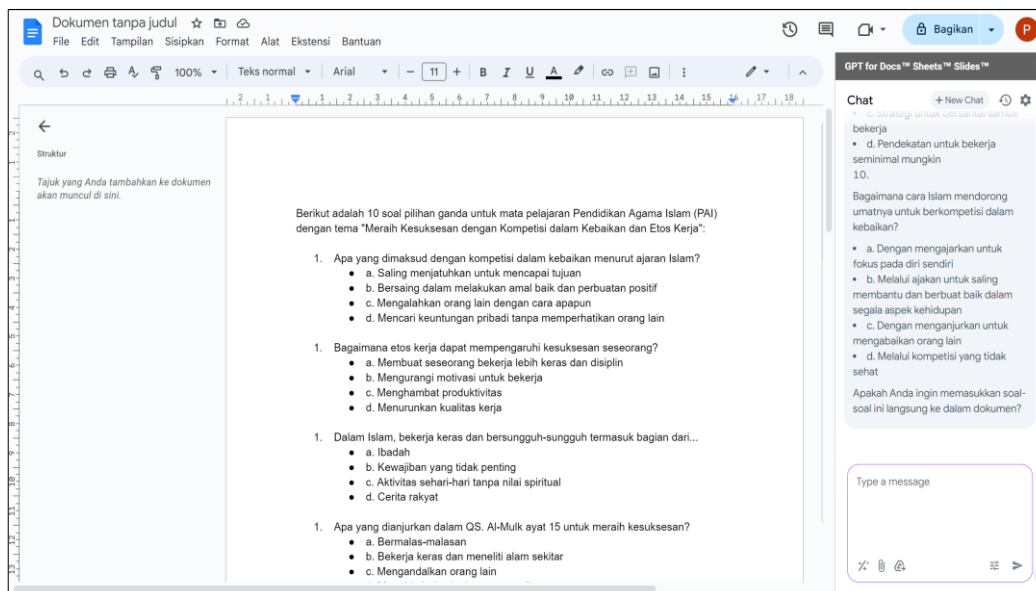


Figure 3. Result

Then automatically all answers to commands that have been typed will go directly to the Google Documents worksheet, then PAI teachers can make corrections and modifications for improvement. In PAI teachers can make corrections and modifications for improvement.

From the results of the reinforcement, it is then analyzed (Hoesterey, 2020). According to Deci, reinforcement is an effective interaction with the environment that provides a sense of efficacy that serves as a reward for this type of behavior and can continue it without the need for encouragement-based reinforcement. Meanwhile, according to Locke and Latham, strengthening must have a clear goal



( goal setting). In order to achieve this goal, there are several steps that must be taken to carry out an analysis of the effectiveness of the strengthening program.



Figure 4. Locke & Latham's Goal Setting Theory

1. Clarity

Goals must be clear and specific to provide measurable and achievable targets. Strengthening this competency is in accordance with the needs that have been obtained, namely strengthening the field of AI in accordance with the needs of PAI teachers in facing the era of society 5.0 and how to apply it in learning materials (Badry & Rahman, 2021a).

2. Challenge

Goals should be challenging enough to motivate and engage, but still achievable. The challenges faced by PAI teachers who are members of the MGMP PAI SMA Kutai Kartanegara are

- a. Individual abilities, especially those related to abilities in the field of technology which are not evenly distributed
- b. In several areas of Kutai Kartanegara, internet connections cannot be connected as well as in urban areas.

3. Commitment

Commitment is very necessary in the strengthening process, whether it is a commitment to learning the material, a commitment to following the reinforcement held as well as a commitment to personal strengthening (Zulaikhah, 2019). Commitment needs to be grown in the process of strengthening the competency of PAI teachers at Kutai Kartanegara High School.

4. Feedback

Feedback is a key component in Goals Setting Theory to achieve a goal, every time they are given feedback so they can set specific and realistic goals, these goals may limit the perpetrator to only achieving that goal, and not exceeding it.

Table 3. Feedback

No	Name	Which school are you from	Feedback
1	Ahmad Ali	SMAN 1 Tenggarong	AI in education is a very effective tool for strengthening high school teachers in providing subject matter in a more interactive and interesting way for students, so that a kind of guide is created to make it easier, especially for PAI subject teachers.
2	Rina Malini	SMAN 1 Tenggarong	Using AI as a reinforcement tool for high school teachers can improve the quality of teaching, allowing teachers to provide more in-depth and detailed explanations about various lesson topics, providing continuous reinforcement from the school

3	Shobirin	SMAN 1 Tenggarong	I can assist high school teachers in analyzing the strengths and weaknesses of individual students through the development of personalized and adaptive learning programs, subject development using AI must always be improved.
4	Siti Raudah	SMAN 2 Tenggarong	With the help of AI, high school teachers can provide assignments and exercises tailored to students' level of understanding, thereby increasing their learning efficiency and academic results. AI also makes it easier to create teaching materials that can be tailored to their needs.
5	Endarari	SMAN 2 Tenggarong	The integration of AI in school curricula can help high school teachers to gain a better understanding of students' individual needs and adapt teaching methods accordingly.
6	Jeki Hijriyani	SMAN 1 Loa Kulu	AI augmentation can help high school teachers automate repetitive administrative tasks, allowing them to have more time to spend on lesson preparation and personal interaction with students.
7	Yenni Handayani	SMAN 2 Loa Janan	By utilizing AI, high school teachers can design more effective evaluation and assessment strategies to measure student progress in learning, as well as track and analyze learning data in real-time.
8	Ali Maghfur	SMAN 2 Muara Muntai	AI enables high school teachers to access and use vast and useful digital educational resources, such as videos, simulations, and online learning platforms

### 5. Complexity

Facing the complexity of this task, the use of AI for Islamic religious education teachers in public high schools can help PAI teachers present more interesting, personal and effective lesson material.

After carrying out a series of analyzes, by setting goals, the effectiveness of strengthening AI competencies in MGMP PAI Kutai Kartanegara can be seen as follows:

**Table 4.** The Effectiveness of Strengthening AI Competencies in MGMP PAI Kutai Kartanegara

No	Name	Results / Impact
1	Tenggarong 1 Public High School	Reinforcement has positive value, teachers can create interactive and interesting learning materials for students. By having teachers who have AI competence, teachers can play an active role in designing a curriculum that is more relevant to the needs of the times and technological developments With this strengthening, of course, it also makes it easier for us as teachers to get lots of references about the lessons delivered to students or learners. These references also really help us teachers in processing the material that will be presented
2	Tenggarong 2 Public High School	The development of AI in public high schools will have a positive impact on optimizing learning The material presented is concise, systematic, easy to understand, thus helping understanding of mastery of the material and leading to increasing our competence as PAI teachers to utilize AI according to our needs.
3	Muara Muntai 1 Public High School	The AI strengthening that has been implemented has had a positive impact on us as religious teachers to make it easier to create material with appropriate and fast references. In this way, it becomes more effective for a teacher in creating material with using AI

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4	Sebulu 1 Public High School	This strengthening of AI must be carried out <i>continuously</i> and teachers will get wider benefits in the use of AI in the world of education. Of course, the implementation of this strengthening must also be evaluated to find out the level of understanding and how much use it has for teachers, especially PAI teachers.
5	Loa Janan 1 Public High School	Strengthening AI must make it easier for teachers to manage and create materials for teaching materials for students, the evaluation is based on the results of the strengthening and these results can be implemented directly for the learning process
6	Loa Janan 2 Public High School	The AI strengthening that has been carried out has brought very good benefits to the Islamic Religious Education teachers at this school. We personally feel extraordinary benefits from this strengthening, but if it is done for things that are not good, this is also very unfortunate. With the help of AI, PAI teachers can save time in preparing learning materials. AI can search and filter various sources of information that are relevant to PAI learning topics, so that teachers can have quick and easy access to them required materials.
7	Loa Kulu 1 Public High School	With the strengthening that we have received as teachers, we feel helped to complete our main work as teachers, namely creating teaching materials, teaching materials can be made well and in less time and we can find reference sources more quickly and precisely. The material presented is very good by preparing material modules and also in language that is easy to understand and understand and the reinforcement can be used optimally.

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#### 4. CONCLUSION

This study emphasizes the need to enhance the skills of Islamic Religious Education (PAI) teachers in adapting to the Society 5.0 era, particularly by integrating Artificial Intelligence (AI) into their teaching. Strengthening AI competence not only improves teachers' technical abilities but also enriches their teaching methods, making lessons more interactive and relevant. However, the research is limited in its geographic and temporal scope, suggesting the need for further studies. To address these challenges, continuous AI training programs should be implemented and supported by improved technological infrastructure, particularly in underserved areas. Mentorship programs can help teachers build confidence in using AI, while long-term studies should be conducted to assess the impact of AI on student outcomes. Additionally, collaboration with the tech industry could provide affordable access to AI tools, and updating the curriculum to integrate AI will guide teachers in effectively using the technology in their subjects.

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