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The Impact of ChatGPT on Self-Regulated Learning among Islamic Religious Education Students: A Case Study at UIN Mataram

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Abstract

Objective: To analyze the impact of ChatGPT use on self-regulated learning among Islamic Religious Education (IRE) students at Universitas Islam Negeri (UIN) Mataram, particularly their perceptions of its benefits, challenges, and effects on learning independence. **Theoretical framework**: This study adopts Zimmerman's theory of self-regulated learning, which examines learning through three dimensions: cognitive, motivational, and behavioral. These dimensions provide the framework for analyzing students' interactions with ChatGPT. **Literature review**: The literature review focuses on the use of artificial intelligence, particularly ChatGPT, in higher education and its relationship with self-regulated learning. It addresses the potential benefits and risks of AI-assisted learning for students' independence, creativity, and critical thinking. **Methods**: This study employs a qualitative case study approach involving four IRE students from semesters 2, 4, and 6 at UIN Mataram. Data were collected through individual interviews and analyzed using data reduction, data display, and conclusion drawing, supported by triangulation. **Results**: The findings reveal that ChatGPT supports assignment planning, information access, material comprehension, idea development, and classroom confidence. However, excessive use may lead to dependency, reduced creativity and critical thinking, and difficulties in verifying information accuracy. **Implications:** The findings highlight the importance of promoting responsible and critical ChatGPT use in Islamic Religious Education. Lecturers should encourage students to use AI as a learning support tool while maintaining independent thinking, creativity, and information-verification skills. **Novelty:** This study provides a context-specific understanding of ChatGPT's influence on self-regulated learning among IRE students at UIN Mataram. Its contribution lies in examining both the supportive and potentially detrimental effects of ChatGPT across Zimmerman's cognitive, motivational, and behavioral dimensions.

Keywords: chatgpt, self-regulated learning, islamic religious education, higher education, artificial intelligence

INTRODUCTION

The development of artificial intelligence (AI) has significantly transformed various aspects of human life, including education [1]. Digital technologies have changed how people communicate, access information, and complete academic activities [2]. In higher education, learning activities require students to engage with more specific disciplines, research, and

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various academic references. Therefore, students need the ability to access, understand, evaluate, and organize information independently. One of the AI-based technologies widely used in education is ChatGPT [3]. This platform can respond to users' questions through text and provide explanations on various topics. Its use in education has grown because it offers relatively quick access to information and can assist students in understanding learning materials and completing academic assignments [4]. ChatGPT has consequently become one of the alternative learning resources used by university students [5]. The use of ChatGPT, however, does not always produce positive effects. Although it can simplify the learning process, excessive reliance on AI may reduce students' efforts to understand material independently. Students may become accustomed to using generated answers without examining the reasoning behind them. This situation can potentially affect their analytical skills, creativity, problem-solving abilities, and critical thinking [6].

Previous studies discussed in the original manuscript also indicate concerns about the effects of AI on students' academic independence. Maulana and Darmawan, for example, discuss the potential negative effects of ChatGPT on reasoning, critical thinking, problem-solving, and creativity in academic writing [7]. Santoso also examines the influence of artificial intelligence on students' learning processes [8]. In addition, the original manuscript highlights the problem of verifying ChatGPT-generated information, particularly when students cannot identify the sources behind the answers provided [9]. At Mataram State Islamic University (UIN Mataram), particularly among students of the Islamic Religious Education (IRE) program, ChatGPT is used for various academic purposes, ranging from searching for definitions and explanations to preparing coursework [10]. Such practices raise questions about whether the technology strengthens students' ability to regulate their own learning or instead encourages dependence on readily available answers. Self-regulated learning is important in this context because university students are expected to manage their learning activities, establish goals, select strategies, maintain motivation, and evaluate their learning progress [11]. The use of ChatGPT may support these activities, but it may also create challenges when students rely on it without independent evaluation [12], [13].

Based on this background, this study examines the impact of ChatGPT use on self-regulated learning among Islamic Religious Education students at UIN Mataram. The analysis focuses on three dimensions: cognition, motivation, and behavior, using Zimmerman's self-regulated learning framework.

The novelty of this study lies in its context-specific examination of ChatGPT use and self-regulated learning among Islamic Religious Education students at UIN Mataram. Unlike studies that primarily emphasize the technological benefits or academic risks of artificial intelligence, this research examines both dimensions through Zimmerman's cognitive, motivational, and behavioral framework. It explores how ChatGPT influences students' information processing, learning motivation, and independent academic practices within the context of Islamic higher education. By integrating these three dimensions, the study provides a more comprehensive understanding of the opportunities and challenges associated with AI-assisted learning and students' development of learning autonomy [12], [13].

The findings have practical implications for students, lecturers, and higher education institutions in promoting responsible AI-assisted learning. Students should develop critical digital literacy, verify AI-generated information, and maintain independent reasoning when using ChatGPT for academic purposes. Lecturers are encouraged to integrate AI into instructional activities through assignments that emphasize analytical thinking, creativity, reflection, and independent problem-solving. Higher education institutions should establish clear guidelines for ethical AI use while strengthening students' self-regulated learning competencies. In Islamic Religious Education, these efforts are particularly important to ensure that technological innovation supports intellectual development, academic integrity, and the formation of responsible and independent learners.

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LITERATURE REVIEW

ChatGPT in Higher Education

ChatGPT is an artificial intelligence-based conversational platform that generates text responses to user prompts [14]. In the educational context, it can be used to obtain explanations, explore ideas, summarize information, and support the completion of academic tasks [15]. The original manuscript describes its use as an alternative source of learning information alongside books, journals, articles, lecturers, and other digital resources [16]. Despite these benefits, ChatGPT-generated responses require evaluation [17]. The information provided may not always be accurate or accompanied by verifiable references. Students therefore need to compare the answers with credible academic sources rather than treating the platform as their only source of information [18].

Self-Regulated Learning

Self-regulated learning refers to the process through which learners actively manage and direct their own learning activities [19]. In this study, the framework is based on Zimmerman's theory, which is used to examine students' learning experiences through three dimensions:

1. Cognitive dimension: how students plan and organize assignments, understand learning materials, and apply learning strategies.
2. Motivational dimension: how students maintain confidence, self-efficacy, interest, and awareness of the relevance of learning.
3. Behavioral dimension: how students manage their learning environment and time, and search for and use learning resources [20].

These dimensions provide the analytical framework for examining how ChatGPT is involved in students' learning activities.

Previous Studies and Research Position

The original manuscript refers to several previous studies concerning AI use, academic learning, and self-regulated learning. Rozikin and Zhu are discussed in relation to planning and organization. McKeachie, Pintrich, Lin, and Smith are cited regarding cognitive learning strategies such as rehearsal, elaboration, and organization. Other studies cited in the manuscript discuss self-efficacy, learning motivation, time management, and the use of ChatGPT in Islamic Religious Education [21]. Based on these discussions, the present study focuses specifically on the experiences of IRE students at UIN Mataram. Its emphasis is not merely on whether ChatGPT is useful, but on how its use is reflected in the cognitive, motivational, and behavioral dimensions of students' self-regulated learning.

METHODOLOGY

This study employed a qualitative approach with a case study design. The analysis was based on Zimmerman's theory of self-regulated learning, particularly its cognitive, motivational, and behavioral dimensions. The research subjects were students of the Islamic Religious Education (IRE) program at the Faculty of Tarbiyah and Teacher Training, Mataram State Islamic University. The original manuscript reports four participants: two male students and two female students. They were drawn from semesters 2, 4, and 6 and had experience using ChatGPT in learning activities. The study used primary and secondary data.

Primary data were obtained from students through individual interviews concerning their experiences, perceptions, and opinions about the impact of ChatGPT on learning independence. Secondary data consisted of reference books, relevant articles, and previous

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research related to the research topic. The data were analyzed through three stages: data reduction, data display, and conclusion drawing. Data validity was supported through source, technique, and time triangulation, as reported in the original manuscript.

The research methodology was organized into six interconnected stages to ensure a systematic investigation of ChatGPT's impact on self-regulated learning. These stages covered research design, participant selection, data collection, data analysis, data validation, and the formulation of findings, as illustrated in Figure 1.

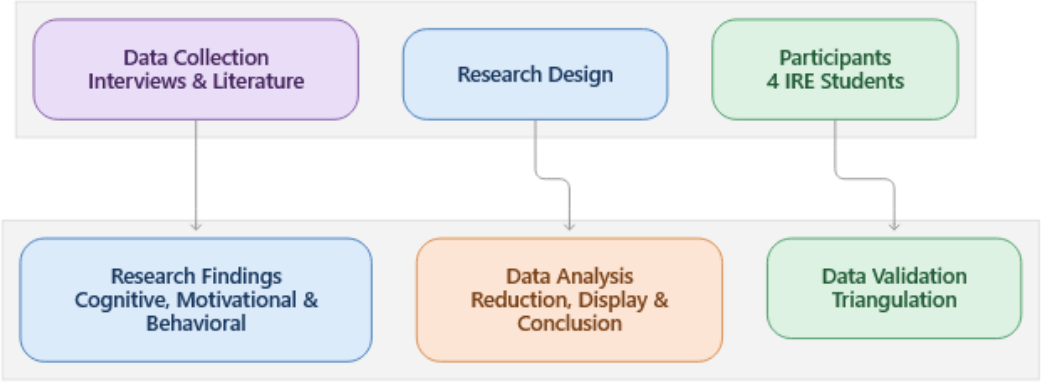


Figure 1. Research Design, Data Collection, Analysis, and Validation Procedures

Figure 1 illustrates the systematic procedures employed in this qualitative case study. The research began with establishing the design and selecting four Islamic Religious Education students as participants. Data were subsequently collected through individual interviews and relevant literature. The collected information was analyzed through data reduction, data display, and conclusion drawing. To strengthen research credibility, source, technique, and time triangulation were applied. Finally, the findings were interpreted using Zimmerman's self-regulated learning framework, focusing on cognitive, motivational, and behavioral dimensions to understand how ChatGPT influences students' learning independence and academic practices.

RESULTS AND DISCUSSION

The findings are based on interviews with four IRE students, consisting of two male and two female participants. The analysis follows Zimmerman's three dimensions of self-regulated learning: cognition, motivation, and behavior. The results show that ChatGPT provides support in several learning activities, although its use also creates challenges related to independence and information verification.

Cognitive Dimension

Task Planning and Organization

Planning and organizing tasks are important parts of self-regulated learning. In this process, students establish goals, determine strategies, and organize the materials and steps needed to complete academic assignments [22], [23], [24]. The interviews indicate that before using ChatGPT, students generally planned their assignments independently by searching for materials in books, journals, and articles. One participant explained: "Before using ChatGPT, I planned assignments by looking for the material first in books, journals, and articles. I planned the assignments independently and based on my own thinking." (W1, P1, M1, J1)

After using ChatGPT, students experienced changes in how they planned and organized assignments. ChatGPT helped them structure their work and generate ideas. One participant

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stated: “Yes, there is a difference. By using ChatGPT, the assignments I work on become more structured because I often use ChatGPT to find ideas for completing those assignments. ChatGPT really helps me in this regard.” (W4, P2, M4, J1)

Students also described efforts to verify the information they received. One participant explained that they asked ChatGPT to provide references and then considered whether the sources were clear (W4, P3, M4, J1). These findings indicate that ChatGPT supports students in organizing assignments and developing ideas. However, students still need to verify the information and references provided by the platform. This finding is consistent with the discussion of planning and organization in the previous studies cited in the original manuscript, particularly Rozikin and Zhu.

Understanding Learning Materials and Learning Strategies

The second cognitive indicator concerns students’ understanding of learning materials and the strategies they use to process information. The original manuscript describes note-taking and summarizing as common strategies among the participants. These strategies help students organize information and strengthen their understanding and memory.

One participant stated: “I choose a strategy by taking notes and summarizing each lesson because this strategy can strengthen my memory.” (W1, P4, M1, J1). ChatGPT was also considered useful when students needed more detailed explanations of material that had not been fully explained during lectures. One participant stated: “Using ChatGPT certainly makes it easier for me to understand the material because some lecturers do not explain things in great detail, while ChatGPT can provide more detailed explanations.” (W2, P5, M2, J1)

The findings suggest that students combine their existing learning strategies, such as note-taking and summarizing, with explanations generated by ChatGPT. In this context, ChatGPT functions as an additional learning aid that can help students elaborate on information [25], [26], [27]. This discussion is related to the cognitive learning strategies described by McKeachie, Pintrich, Lin, and Smith, particularly rehearsal, elaboration, and organization.

Motivational Dimension

Confidence and Self-Efficacy

Self-efficacy concerns students’ beliefs about their ability to organize and carry out the actions required to achieve learning goals [28], [29]. The interviews indicate that ChatGPT can help students feel more confident, particularly when participating in classroom discussions. One participant explained: “I feel very confident, especially when discussing things in class. With the answers provided by ChatGPT, I can be more confident in expressing the opinions that are already in my mind.” (W4, P6, M4, J1)

The interviews also show that students maintain their learning motivation through personal strategies, including taking breaks when they feel tired or find assignments difficult. One participant stated: “First, I need to get enough rest. After resting, I continue working on the assignment. What initially felt difficult becomes easier, and then I look for references such as articles or books.” (W3, P7, M3, J1)

These findings indicate that ChatGPT can support students’ confidence by helping them prepare information before expressing their opinions. Nevertheless, motivation is not determined by technology alone. Students’ ability to manage themselves, including taking adequate breaks and independently searching for references, also contributes to their learning motivation [30], [31], [32]a. This discussion is connected with the studies on self-efficacy and confidence cited in the original manuscript, including Oktaviana et al. and the study by Sarah et al.

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Learning Value and Relevance

Learning motivation is also influenced by students' perception of the value and relevance of the material [33]. In Islamic Religious Education, the connection between academic material and everyday life is particularly important because students are expected to understand and apply religious values in their daily activities [34]. The interviews show that students' interest in Islamic education is one of the factors motivating them to study. One participant stated: "I think it is because I gain additional religious knowledge. Perhaps it is because I have an interest in Islamic education." (W1, P8, M1, J1)

ChatGPT also helped students understand the relationship between lecture materials and everyday experiences. One participant explained: "Yes, ChatGPT helps me understand the relevance of lecture materials to everyday life. Sometimes the lecturer's explanation does not immediately make the benefits clear in class, so I ask ChatGPT to understand that connection." (W4, P9, M4, J1)

The findings suggest that students' interest in Islamic education provides an important motivational foundation, while ChatGPT can help clarify the practical relevance of academic material [35]. This is consistent with the literature review by Mukarromah et al., as cited in the original manuscript, concerning the use of ChatGPT in Islamic Religious Education learning.

Behavioral Dimension

Learning Environment and Time Management

The behavioral dimension includes students' ability to manage time and learning resources to achieve their learning goals [36]. The interviews show that students use schedules and deadlines to organize their academic activities. One participant explained: "By making a list and setting deadlines for the assignments we want to work on, we can identify which tasks should be prioritized and completed first." (W1, P10, M1, J1)

Another participant described how ChatGPT had made the learning process more flexible, while also acknowledging the possibility of becoming dependent on AI: "Yes, ChatGPT influences how I manage my study time. Before using ChatGPT, I usually relied on books or manual references. With ChatGPT, some things become more flexible, although over time I feel dependent on AI. However, as long as it is positive, I do not see it as a problem." (W4, P11, M4, J1)

These statements indicate that ChatGPT can help students access information more efficiently and make their learning activities more flexible. Nevertheless, the possibility of dependency remains a concern. Students therefore need to maintain their own time-management strategies and avoid allowing technological convenience to replace independent learning [37]. This finding relates to the discussion of time management in Salwa et al., as cited in the original manuscript.

Information Search and Learning Resources

The final behavioral indicator concerns students' ability to search for, evaluate, and use different learning resources [38]. The interviews show that students use ChatGPT alongside books, lecturers, journals, articles, and digital platforms such as YouTube and TikTok. One participant described the variety of learning resources they used: "I usually use journals and articles. I also ask friends who understand the material. To add more references, I search through applications such as YouTube, TikTok, and others." (W3, P12, M3, J1)

However, the interviews also indicate that students increasingly turn to ChatGPT to obtain information. One participant acknowledged the possibility of dependency but explained that they still compare the information with other sources: "Yes, that is true. After getting

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information from ChatGPT, I sometimes become dependent on it. However, I still check whether the information is appropriate and valid by comparing it with other sources." (W1, P13, M1, J1)

Table 1. The Impact of ChatGPT on the Three Dimensions of Self-Regulated Learning

Dimension	Indicators	Positive findings	Challenges
Cognitive	Task planning and organization	Helps structure assignments and generate ideas	Students need to verify information and references
Cognitive	Understanding materials and learning strategies	Provides additional explanations and supports note-taking and summarizing	Risk of relying on generated explanations without deeper understanding
Motivational	Confidence and self-efficacy	Helps students prepare opinions and feel more confident in discussions	Confidence still needs to be supported by independent understanding
Motivational	Learning value and relevance	Helps connect lecture materials with everyday life	Motivation also depends on students' personal interest and self-management
Behavioral	Learning environment and time management	Makes access to information and task completion more flexible	Potential dependency on AI
Behavioral	Information search and learning resources	Provides an additional source of learning information	Accuracy and references must be checked against other sources

The interview findings indicate changes in students' learning practices following the use of ChatGPT. These changes can be observed in how students plan assignments, understand learning materials, complete academic tasks, and search for information, as presented in Table 2.

Table 2. Changes in Students' Learning Practices Before and After Using ChatGPT

Learning Activities	Before Using ChatGPT	After Using ChatGPT	Learning Activities
Task Planning and Organization	Students independently planned assignments by searching for materials in books, journals, and articles.	Students used ChatGPT to generate ideas, organize assignments, and make their work more structured.	Task Planning and Organization
Understanding Learning Materials	Students relied on personal learning strategies, such as taking notes and summarizing lessons, to strengthen memory.	Students used ChatGPT to obtain more detailed explanations and improve their understanding of lecture materials.	Understanding Learning Materials
Assignment Completion	Students developed assignments based on their own thinking and independent searches for learning materials.	Students used ChatGPT to find ideas and references that could support assignment completion.	Assignment Completion
Information Search	Students searched for information through books, journals, articles, lecturers, friends, and other learning resources.	Students increasingly used ChatGPT to obtain information, while still comparing its answers with other sources to check accuracy.	Information Search

Source: Research findings based on interviews with IRE students (W1–W4).

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Tables 1 and 2 collectively illustrate how ChatGPT influences self-regulated learning and transforms students' academic practices across cognitive, motivational, and behavioral dimensions. The findings indicate that ChatGPT facilitates assignment planning, material comprehension, idea development, information searching, and learning confidence. Compared with previous practices, students increasingly utilize AI to support academic activities and access information more efficiently. However, these benefits are accompanied by challenges, including information accuracy, potential dependency, and reduced independent reasoning. Therefore, ChatGPT should function as a supplementary learning resource rather than a substitute for students' critical thinking, independent learning, and academic responsibility.

The comparison shows that ChatGPT has shifted some learning activities from predominantly independent information searching toward AI-assisted learning. Although this tool provides convenience and supports more structured learning, students still need to maintain independent thinking and verify information obtained from ChatGPT.

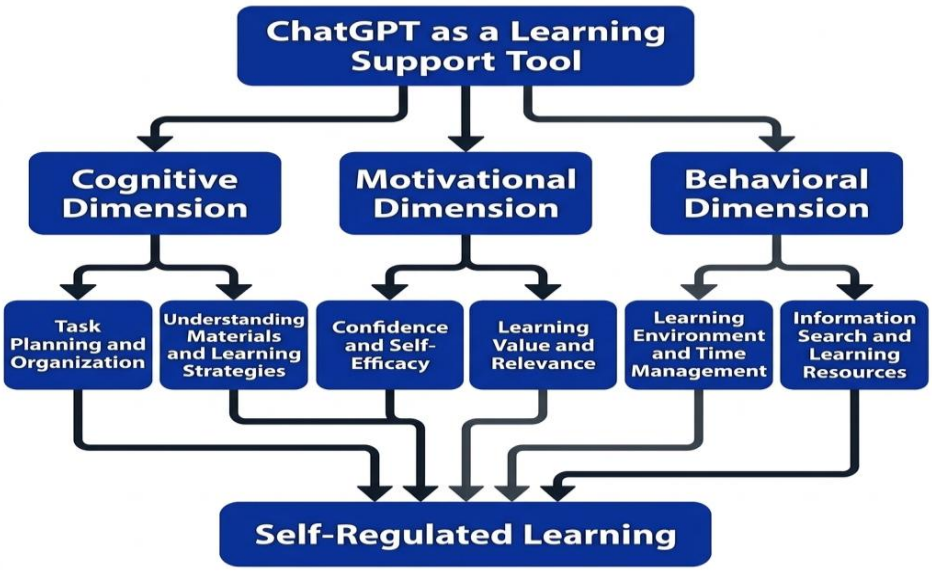


Figure 2. ChatGPT Use Within the Three Dimensions of Self-Regulated Learning

Source: Research findings analyzed using Zimmerman's self-regulated learning dimensions.

Figure 2 illustrates the relationship between ChatGPT use and the three dimensions examined in this study: cognitive, motivational, and behavioral aspects of self-regulated learning. In the cognitive dimension, participants described how ChatGPT helped clarify concepts, obtain explanations, identify relevant information, and organize ideas for academic tasks. This support could make learning materials more accessible and help students understand difficult topics. In the motivational dimension, interaction with ChatGPT could strengthen confidence by allowing students to ask questions, explore alternative explanations, and receive responses without hesitation. It could also help them recognize learning relevance by connecting abstract concepts with practical examples. In the behavioral dimension, ChatGPT offered flexibility in managing learning activities, planning study tasks, reviewing information, and searching for resources.

These functions may help students regulate their learning according to their needs and time. However, the figure does not suggest that access to ChatGPT automatically produces self-regulated or independent learners. Its contribution depends on how students use, evaluate, and integrate generated information into their learning practices. Students still need to set

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goals, monitor understanding, verify information, and take responsibility for decisions. Thus, ChatGPT is best understood as a supporting tool whose educational value depends on students' engagement and critical judgment.

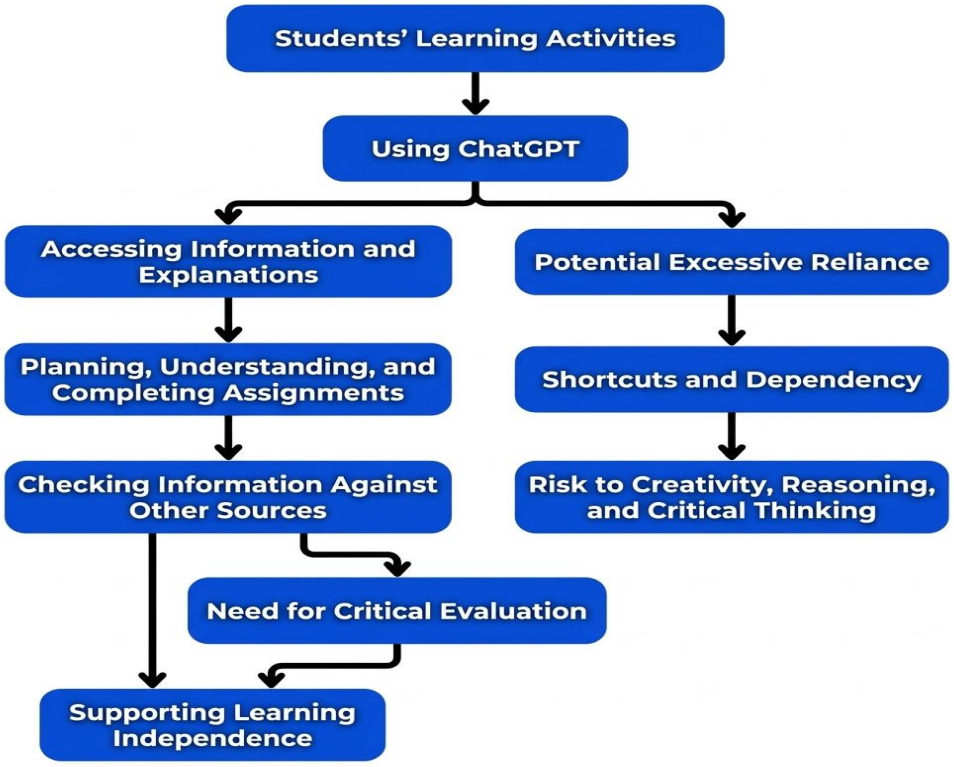


Figure 3. Procession

Source: Research findings synthesized from participant interviews. The diagram represents the themes identified in the study, not a measured causal model.

Figure 3 presents two possible patterns identified in the participants' experiences. In the first, students use ChatGPT to obtain explanations and ideas, then verify the information through other sources. This practice can support learning activities while retaining students' active involvement [39], [40], [41]. In the second, excessive reliance on ChatGPT may encourage shortcuts and dependency, potentially weakening independent reasoning and critical thinking. The findings therefore emphasize the importance of critical evaluation and responsible use. Overall, the findings show that ChatGPT has both supportive and challenging implications for self-regulated learning among IRE students at UIN Mataram. In the cognitive dimension, it helps students organize assignments, generate ideas, and obtain additional explanations. In the motivational dimension, it can increase confidence and help students recognize the relevance of lecture materials. In the behavioral dimension, it offers flexibility in managing time and accessing learning resources.

In-Depth Analysis of Findings

The findings reveal that ChatGPT plays a dual role in shaping self-regulated learning among Islamic Religious Education students at UIN Mataram. Its influence extends beyond facilitating academic tasks to transforming how students organize knowledge, maintain motivation, and regulate learning behavior. Through the cognitive dimension, ChatGPT functions as an intellectual support tool that helps students structure assignments, generate ideas, obtain additional explanations, and improve their understanding of lecture materials. However, the transition from independent information searching to AI-assisted learning

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raises concerns about cognitive engagement. When students accept generated responses without examining their accuracy, the learning process may become oriented toward obtaining immediate answers rather than developing deeper understanding [39], [40], [41].

From the motivational perspective, ChatGPT contributes to students' confidence and perceived learning relevance. Access to additional explanations enables students to prepare opinions, participate in classroom discussions, and connect theoretical concepts with everyday experiences. Nevertheless, increased confidence should not automatically be interpreted as improved academic competence. Genuine self-efficacy requires students to possess sufficient knowledge and the ability to communicate arguments independently. Therefore, the motivational benefits of ChatGPT depend on whether students actively process information rather than merely reproduce generated responses.

The behavioral dimension demonstrates that ChatGPT influences students' time management, learning flexibility, and selection of information resources. Its accessibility allows students to obtain explanations more efficiently and organize academic activities according to their individual needs. Nevertheless, participants' experiences also reveal emerging patterns of dependency. This indicates a potential tension between technological convenience and behavioral self-regulation. Effective learning requires students to maintain control over their study schedules, evaluate information sources, and determine when technological assistance is appropriate.

Importantly, the three dimensions are interconnected rather than operating independently. Cognitive support can strengthen motivation, while increased confidence may encourage more active learning behavior. Conversely, excessive dependence can weaken independent cognitive engagement and reduce students' responsibility for managing their learning. These relationships suggest that the educational value of ChatGPT is determined not simply by its availability but by students' capacity to regulate its use. In Islamic Religious Education, responsible AI integration should therefore emphasize intellectual independence, ethical awareness, information verification, and reflective learning. ChatGPT is most beneficial when positioned as a supplementary educational resource that strengthens students' capabilities without replacing their reasoning, personal responsibility, and independent knowledge construction.

CONCLUSION

This study concludes that ChatGPT has both positive and negative implications for self-regulated learning among Islamic Religious Education students at UIN Mataram. In the cognitive dimension, ChatGPT helps students plan and organize assignments, develop ideas, and understand learning materials through additional explanations. In the motivational dimension, it can support students' confidence in expressing opinions and help them understand the relevance of academic material to everyday life. In the behavioral dimension, ChatGPT provides flexibility in managing learning activities and accessing information from different sources. Nevertheless, excessive use of ChatGPT may encourage students to take shortcuts and become dependent on AI. Such dependency may affect creativity, reasoning, and critical thinking. Students also face challenges in verifying the accuracy and sources of ChatGPT-generated answers. Therefore, ChatGPT should be used responsibly as a supporting learning tool rather than as the sole source of information or a substitute for independent thinking. Students need to maintain their learning independence, evaluate information critically, and compare AI-generated answers with credible academic references. With appropriate use, ChatGPT can support effective and ethical learning while maintaining the development of students' self-regulated learning abilities. Furthermore, lecturers play an important role in guiding students toward responsible and purposeful AI integration in academic activities. Educational institutions should also strengthen AI literacy through appropriate guidelines, academic supervision, and learning assessments that emphasize originality, analytical reasoning, and intellectual responsibility. Future research should

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investigate the long-term effects of ChatGPT use across different educational contexts and student populations to develop a more comprehensive understanding of its contribution to independent learning.

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Author Contributions

All authors contributed to the research process, including conceptualization, methodology, data collection, data analysis, interpretation, and manuscript preparation. The authors collaboratively reviewed, revised, and approved the final manuscript and accept responsibility for the integrity and accuracy of the published work.

Conflict of Interest

The authors declare that there are no financial, personal, professional, or institutional conflicts of interest that could have influenced the research design, data collection, analysis, interpretation, or reporting of the findings presented in this manuscript.

Use of Artificial Intelligence (AI)

Generative artificial intelligence tools were used solely to assist with language refinement and manuscript preparation. All authors critically reviewed the generated suggestions, independently verified the content, and accept full responsibility for the manuscript's accuracy, originality, and integrity.

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