Memorizing the Qur'an in the Digital Era: Santri Learning Engagement through Online Tahfidz Programs

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ARTICLE INFO	ABSTRACT
	This study explores the phenomenon of memorizing the Qur'an in the digital era, focusing on santri's learning engagement through online tahfidz programs. The rapid development of technology has transformed traditional methods of Qur'an memorization, offering flexible access and diverse digital platforms to support the process. This research aims to examine the extent to which digital-based memorization programs enhance student engagement in cognitive, affective, and behavioral dimensions. Using a qualitative approach, data were collected through interviews, observations, and documentation of santri participating in online tahfidz activities. The findings reveal that the integration of digital platforms fosters motivation, autonomy, and discipline, while also presenting challenges such as distraction, inconsistent internet connectivity, and reduced direct interaction with teachers. Despite these challenges, the study indicates that online tahfidz programs can significantly strengthen santri's engagement when supported by family encouragement, effective mentoring, and structured schedules. This research contributes to the discourse on Islamic education by demonstrating how digital platforms can be integrated into religious learning while maintaining the values of Qur'anic memorization. The study concludes that successful implementation requires a balance between technological innovation and traditional methods to ensure meaningful and sustainable learning engagement among santri.
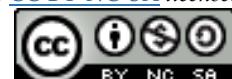
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INTRODUCTION

Memorizing the Qur'an has become an important part of Islamic educational tradition that has been ongoing since ancient times (Malta, Malta, Syarnubi Syarnubi, 2022). Memorizing the Qur'an has become an important part of Islamic educational tradition that has been ongoing since ancient times (Malta, Malta, Syarnubi Syarnubi, 2022). This activity is not only a form of worship but also a symbol of scholarship that is highly valued in various Muslim countries, including Indonesia. Currently, tahfidz programs have become part of the educational system in pesantren (Islamic boarding schools), madrasahs, and other religious institutions. Government and community support continues to strengthen their existence. One example is in Wajo Regency, South Sulawesi, where the number of tahfidz santri was recorded to increase drastically, reaching more than 3,581 santri spread across 40 tahfidz pesantren in 14 sub-districts in early 2022. This figure shows a significant increase from 2021, which was only around 1,700 santri. This fact demonstrates that Qur'anic tahfidz

education is still highly relevant, both at national and global levels, as an effort to produce a generation of Muslims who are active in Qur'anic scholarship and practice (Slamet Riyadi, 2022).

The rapid digital transformation has caused tahfidz learning methods to undergo major changes. Various applications and digital platforms are now emerging and being utilized by santri to learn flexibly and independently from their respective homes. This development makes the process of memorizing the Qur'an more accessible and adaptable to current needs. Recent research also shows that the utilization of information and communication technology (ICT) in Islamic education has become a primary need, no longer just an option. Among millennial santri, it has been proven that the use of mobile applications and online learning media helps them memorize several juz, and some even complete all 30 juz (Akbari, 2024). This phenomenon indicates a change in the way of learning tahfidz. Many santri experience benefits from easy access to materials and online guidance. Even their recitation quality and discipline in memorizing improve when technology is well-managed by teachers. Therefore, with the right approach, technology can be a very effective tool in supporting the success of tahfidz programs (Tjasmin, 2024)

In Yogyakarta, there is a tahfidz house that uses WhatsApp video calls as the main medium in online tahfidz learning. This online tahfidz program runs for two months and is open to various age groups, both those who already have memorization and those just starting to memorize the Qur'an. Since the pandemic until now, the learning system continues to operate. However, in its implementation, online tahfidz learning has been facing a major challenge, namely santri learning engagement.

Learning engagement theory encompasses three main aspects: affective, cognitive, and behavioral. First, affective includes enthusiasm, interest, and sense of belonging toward learning. Second, cognitive relates to thinking strategies, efforts to understand material, and intellectual persistence. Finally, behavioral encompasses active participation, attendance, and discipline in following the learning process (Fredricks, Blumenfeld, & Paris, 2004). This level of engagement greatly determines academic success, including in the context of memorizing the Qur'an, as the process demands focus, consistency, and intense interaction with ustadz (teachers) and materials.

As research by Utama Putra & Syukri (2024), shows, in this digital era, students are easily distracted by social media, online games, or other digital entertainment. The inability to manage digital use wisely can disrupt the focus on educational values in child education programs currently being implemented at the Al-Huffadz Tahfidz Foundation. Consequently, many complain about the lack of direct interaction with teachers, internet signal constraints, and disturbances from the surrounding environment. Some santri even become less focused and less motivated, resulting in decreased memorization quality due to lack of direct supervision. This becomes an important issue because santri learning engagement, whether emotional, cognitive, or behavioral, greatly determines the success of the memorization process (Nurhayati et al, 2024)

Various previous studies on learning engagement in online learning show diverse approaches, focuses, and complementary results. Lai (2019) used experimental approaches and Social Network Analysis to study how interactions in online learning communities affect student engagement and academic achievement. This study compared two groups: one utilizing an English language learning system integrated with Facebook-based online communities, and another using a learning system without social features. Results showed that although academic achievement did not differ significantly, learning engagement was much higher in the group with social interaction. Central positions in social networks also contributed to better achievement, confirming that social relationships and roles in communities can strengthen engagement.

Luan (2023) studied the relationship between social support and EFL student learning engagement during the COVID-19 pandemic. Involving 615 students and using Structural Equation Modeling (SEM), this research showed that support from teachers and peers increases behavioral engagement, which then mediates cognitive, emotional, and social engagement. This underlines the importance of learning strategies that build a sense of support to facilitate multidimensional engagement in online environments. Meanwhile, J. Yang et al.,(2021) used the Stimulus Organism Response (S-O-R) framework to explain how e-learning environmental stimuli such as perceived

closeness, learning control, and peer influence affect self-efficacy and subjective well-being, ultimately enhancing learning engagement. This research shows how psychological learning environment elements can shape students' internal processes and encourage active engagement in e-learning, especially in pandemic contexts.

Getenet et al., (2024) highlighted the role of attitudes toward digital technology, digital literacy, and self-efficacy in shaping five dimensions of online learning engagement: social, collaborative, cognitive, behavioral, and emotional. Involving 110 students in Australia, this study found that digital literacy and positive attitudes toward technology strengthen self-efficacy, which significantly influences all aspects of engagement. This confirms that students' technological and psychological readiness are prerequisites for meaningful engagement in modern online learning.

Research by Cheong et al., (2020) offers a contextual perspective from Indonesia, focusing on secondary school language teacher engagement during the pandemic. This qualitative study involving 18 teachers from various regions revealed major challenges such as limited internet access, technology readiness, and socioeconomic gaps. Results showed that teacher engagement is greatly influenced by local contexts and requires policy support and continuous training to address digital disparities. Additionally, Lu & Churchill (2014) explored social interaction in the Elgg social media platform and found increased social engagement but not accompanied by high cognitive engagement. Jung & Le (2018) through SEM identified that teaching presence and perceptions of online learning platform usefulness have significant influence on learning engagement and persistence in MOOCs. Both emphasize the importance of student perceptions of systems and instructors as main factors of engagement.

Hu & Hui (2012) proved that learning engagement mediates the negative impact of pre-recorded learning videos on learning effectiveness and satisfaction. Different from this, Buelow et al., (2018) showed that student learning engagement in online learning is greatly influenced by the types of learning activities they participate in. Through a survey of 417 students from one state university, researchers found that activities that significantly increase learning engagement include: (1) learning that changes students' understanding of an issue or concept, (2) activities that connect learning to social problems, (3) activities that allow students to relate material to previous experiences or knowledge, and (4) activities considered enjoyable, such as interactive discussions. Meanwhile, D. Yang et al.,(2018) conducted a conceptual literature review and found that many studies overemphasize behavioral engagement (such as access duration) while neglecting strategic aspects such as reflection and self-regulated learning. They called for the need to redefine engagement in the context of adaptive technologies such as gamification and flipped classrooms.

Based on the research presented, these various studies confirm that learning engagement is multidimensional and influenced by internal factors (motivation, digital literacy) and external factors (social support, online environment). However, there has been no research that specifically discusses santri learning engagement in the context of online tahfidz based on video call applications such as WhatsApp. Therefore, this research comes to fill that gap.

This discussion is expected to add insight into Islamic education in the digital era, especially in the context of Qur'anic tahfidz. This research will also provide practical contributions for teachers, pesantren managers, and curriculum developers to better understand teaching strategies suitable for the digital world. If interaction is felt to be lacking, then training is needed for teachers to be more skilled in using appropriate online learning media. This approach will be very helpful in designing online tahfidz systems that are not only flexible but also remain effective in fostering santri spirit and discipline (Nurhayati et al., 2024).

The purpose of this research is to explore factors that influence santri engagement in online tahfidz learning from three main aspects: affective (emotional), cognitive (understanding), and behavioral (discipline). By understanding these aspects, we hope to formulate more appropriate learning strategies to produce a generation of Qur'an memorizers who can apply the values contained in the Qur'an in life in the digital era.

METHODS

This research uses descriptive qualitative methods. Using this approach, researchers can produce descriptive data in the form of written/oral words from people or observable behavior (Koyan, 2022). This approach was chosen because researchers want to deeply reveal the subjective experiences of santri and ustadz in participating in and guiding online tahfidz programs based on WhatsApp video calls. The main focus of this research is to reveal how the use of technology shapes and influences santri learning engagement, specifically WhatsApp video calls as the main medium of interaction in online tahfidz learning processes at Wisma Huffazhul Quran Yogyakarta, which has implemented online Qur'anic learning methods since the pandemic until now.

Respondents in this research consist of four santri and two ustadz who are actively involved in the online tahfidz program. The santri participating in this program are aged 9-14 years who actively follow the program regularly for two months. The two selected ustadz are the main memorization guides, directly guiding the santri through WhatsApp video calls. Respondents were purposively selected to align with the research focus and to ensure informants have the ability to provide in-depth information about online tahfidz learning experiences.

Data collection was conducted through three main techniques. First, in-depth semi-structured interviews were conducted with two ustadz and four santri to explore more deeply regarding motivation, obstacles, and online tahfidz learning strategies. Second, participatory observation where the author joined video calls to directly observe memorization deposit sessions through video calls to examine santri's affective, cognitive, and behavioral engagement during the interaction process. Third, documentation in the form of video recordings, deposit screenshots, and memorization evaluation notes. Interviews were conducted online using WhatsApp video call applications to study experiences, difficulties, and perceptions of santri and ustadz during the online tahfidz learning process. The purpose is to observe learning interactions, guidance approaches, and ustadz responses during the memorization process.

Data analysis in this research uses thematic analysis approach from (Braun & Clarke, 2006). This method was chosen because it can explore meaning patterns from comprehensive, flexible, and in-depth learning experiences (Cleland, 2017). This technique is very suitable for identifying engagement aspects whether affective, cognitive, or behavioral that develop from online interactions between santri and teachers during tahfidz programs. The analysis process begins with data transcription, followed by reading and understanding data comprehensively, identifying main themes, grouping data according to themes, and composing narratives and interpretations of findings.

With this method, it is hoped that the research can provide a clear picture of santri learning engagement in WhatsApp video call-based online tahfidz programs and can serve as a reference for similar research in the future.

FINDINGS AND DISCUSSION

A. Participant Data

Name	Status	Age	Duration in program/as tahfidz online guide	Number of juz memorized/extent of guide role
Faiz (pseudonym)	Ustadz	26	3 years	Listening, correcting, and motivating
Abdi (pseudonym)	Ustadz	22	2,5 years	Listening, correcting, and motivating
Dodi (pseudonym)	Santri	14	2 months	2 juz
Andi (pseudonym)	Santri	12	2 months	1 juz
Agus (pseudonym)	Santri	9	1,7 months	4 juz

Bara (pseudonym)	Santri	14	7 months	4 juz

B. Discovered Themes

Based on research results conducted through interview methods, several answers were found which were then categorized into 5 themes: affective, cognitive, behavioral, technology use, and reflection and suggestions.

1. Affective

Interview results with santri show that the affective aspect in online tahfidz programs becomes one of the main factors influencing memorization continuity. Most santri, such as Bara, expressed happiness because they can deposit memorization from home. This comfort provides flexibility for santri to arrange deposit times according to their conditions. This aligns with findings by Kammer (2025), that online learning enables students to access educational materials from anywhere and anytime, significantly enhancing their ability to engage emotionally. The comfort and happiness felt by santri become important capital in maintaining memorization deposit consistency. Psychological comfort is very important for effective learning, especially in distance learning environments (Myasnikova & Khrebtova, 2022).

Besides comfort, motivation and enthusiasm become dominant components influencing memorization achievement. Agus, for instance, stated that he is more enthusiastic when able to memorize new verses quickly and easily, but his enthusiasm tends to decrease when facing long and difficult verses. This condition shows that memorization success depends not only on cognitive ability but also on psychological factors influenced by material complexity. Similar things were also expressed by Bara, who said memorization motivation increases due to parental encouragement but can decrease due to sudden laziness. Enthusiasm also emerges from social support provided by guides. Agus mentioned that the presence of ustadz who correct memorization errors provides satisfaction and security in the memorization process. This shows that positive interaction between guides and santri can increase intrinsic motivation. Dodi and Andi also expressed that they feel excited and never bored following the program because murojaah (review) is well-maintained. Enjoyable interaction makes santri feel valued and emotionally supported.

From the guide's perspective, ustadz Faiz assessed that santri enthusiasm and spirit in online tahfidz programs are very good, especially due to the flexibility of time offered. This program becomes a solution for those who want to memorize the Qur'an but have limitations in following face-to-face programs. Ustadz Faiz also noted differences in segmentation between online and offline participants, where online participants generally come from those with high busyness. As a guide, he not only serves as a memorization listener but also as a motivator ready to provide motivation and solutions when santri experience decreased spirit. Similarly, ustadz Abdi assesses santri spirit level from attendance discipline in online deposits. According to him, santri who still make time for deposits despite having many activities show high enthusiasm. He also emphasizes the importance of effective communication in online learning. By always providing motivation and emotional support, guides play an active role in maintaining santri spirit stability. Emotional support and personalized learning strategies result in improved student learning outcomes, including higher academic performance, better emotional well-being, and increased motivation (F. Liu, Ziden, & Liu, 2024). This underlines the importance of personal approaches and emotional guidance in managing online-based tahfidz programs, so participants maintain their commitment to memorizing the Qur'an.

2. Cognitive Aspect

Cognitive learning involves various mental functions such as understanding, reasoning, and memory. Effective learning requires students to actively engage in these cognitive

processes (Maringanti & Sahu, 2024). Several santri, such as Agus, Dodi, and Andi, admit they can easily understand guide explanations online. This is also confirmed by ustadz Faiz and ustadz Abdi, who state that as long as internet connection is smooth, santri can understand memorization corrections well. Even by just mentioning verse numbers or specific words, santri can immediately understand the location of intended errors.

Learning strategies used by guides play important roles in supporting santri cognitive processes. Ustadz Faiz applies the talaqqi method, namely by demonstrating correct recitation then followed by santri. Additionally, he also provides materials tailored to each santri's errors and needs, showing learning differentiation. Similarly, ustadz Abdi explains that online learning processes are almost the same as offline, where guides show error locations, provide correct examples, then ask santri to imitate them.

Various learning strategies are used by santri to maintain memorization. For instance, Bara conducts murojaah or repeats recitation after halaqah (study circle) and studies it again during free time. Agus applies murojaah habits in various places such as musholla (prayer room), on the road, bedroom, or school, and asks his parents to listen to memorization before depositing. Meanwhile, Dodi and Andi apply more structured methods, such as reading half a page five times, memorizing with open-close technique five times, then depositing to friends or parents before to ustadz. Different things were conveyed by Bara who faces challenges in cognitive processes, where he admits not yet having specific strategies for memorizing and sometimes feels difficulties due to unstable internet connection. Ustadz Abdi also reveals that the main difference between online and offline learning lies in physical interaction limitations, such as not being able to directly point to santri's Qur'an to clarify corrections. This obstacle potentially affects learning effectiveness.

Understanding of materials is also strengthened through repeated practice and habituation. Santri like Dodi and Andi apply memorization processes with daily activities, such as routine daily murojaah and dividing recitation into small parts before memorizing. This strategy shows that habituation and repetition become keys in strengthening memory and improving memorization accuracy. This is reinforced by research from Podoliak (2021), that techniques such as Spaced Repetition and Active Recall are effective in improving memory and understanding, resulting in better long-term retention and comprehension.

3. **Behavioral**

Each santri has different levels of discipline and consistency in following online tahfidz programs. Some santri, such as Agus, Dodi, and Andi, conduct memorization deposits according to predetermined schedules, namely three times a week on Mondays, Wednesdays, and Fridays. Ustadz Abdi also reveals that most santri are able to maintain discipline, including by not looking at or cheating from the Qur'an during deposits. This shows awareness of the importance of integrity in the memorization process. However, ustadz Faiz notes that there are still santri who lack discipline due to busyness or lack of awareness of memorization deposit obligations.

External support from families also becomes an important factor in forming consistent learning behavior. Students who receive strong family support are more motivated to learn and apply effective learning strategies (Burgos, Inácio, Oliveira, & Baptista, 2021) . Agus admits always being reminded by his parents regarding online learning schedules. Even Agus has been arranged in detail by parents, covering worship activities, school, tutoring, reciting, online and offline TPQ (Qur'anic education), playing, and exercising. Besides that, Bara also makes written schedules posted on walls to help time management, so all activities can be done regularly according to plans. Various disturbances also emerge and affect santri learning behavior. For instance, Bara, Dodi, and Andi admit being disturbed by vehicle sounds, house bells, buyer voices, or message notifications during memorization processes. Technical factors such as unclear sounds due to internet connection also become obstacles. Agus and Andi mention disturbances from habits of playing games on phones or playing

outside that can reduce memorization focus. These disturbances show that online learning is more vulnerable to distractions compared to face-to-face learning in pesantren.

Besides external factors, there are also internal obstacles that affect learning behavior. Some santri, such as Dodi and Andi, admit often suddenly forgetting recitations, even mentioning wrong letters during deposits. This shows memory disturbances that require memorization strengthening strategies. Ustadz Abdi also highlights moments when santri begin to feel bored and lazy, which potentially reduces their engagement in tahfidz processes.

To overcome these various challenges, guides implement several strategies. Ustadz Faiz tries to maintain santri spirit by giving encouraging words after deposits and asking if there are complaints in memorizing. This is important considering guides cannot accompany santri 24 hours like in pesantren. Ustadz Abdi also provides memorization notes in every meeting, so santri memorization processes can be monitored continuously.

4. Technology Use

The use of various technologies such as instant messaging, email, discussion boards, chat rooms, web conferencing, and virtual reality environments has been found to enhance online learning effectiveness (Ozan, Tabrizi, Wuensch, Aziz, & Kishore, 2007). Bara and Dodi state that online learning facilitates memorization deposit processes because they can be done from home with flexible time. Andi also expresses similar things, emphasizing that time flexibility and efficiency become main advantages. Even Agus considers this technology use is good enough in supporting learning smoothness. Access convenience is also felt by santri which is considered to provide significant benefits in learning effectiveness. Albar considers technology enables them to still learn with ustadz from home. Agus adds that technology makes it easier for parents to accompany their children in memorizing, while ensuring competent guides can guide directly through online media. This advantage strengthens santri and family motivation to continue following tahfidz programs despite not being in pesantren environments.

Santri also assess limitations in online learning technology use. Bara highlights that learning duration tends to be shorter compared to face-to-face learning, so interaction with ustadz becomes limited. Dodi and Andi also mention that although time-saving, online learning sometimes faces network disturbances (lag), which can reduce memorization deposit process smoothness. These obstacles show that online learning quality depends not only on methods but also on technology infrastructure stability.

Technical problems, especially related to internet signals, become frequently faced obstacles. Dodi and Andi admit often experiencing network disturbances that cause deposit interruptions. Bara has also experienced similar obstacles and chooses to wait or find locations with better signals before continuing memorization deposits. This condition confirms and aligns with research by Ren (2024), that internet access quality greatly affects student satisfaction with online learning, and stable internet enables smoother interactions during synchronous online learning sessions, which enhances student engagement and satisfaction.

Santri also show good adaptation abilities and technical problem management. Agus mentions that when main devices experience disturbances, he immediately switches to other phones so deposits continue running. If signal disturbances or other obstacles occur, deposit schedules can be changed to other days outside predetermined schedules. This flexibility becomes a particular advantage that helps reduce negative impacts from technical obstacles.

5. Reflection and Suggestions

Reflection is an important component of learning processes, enhancing learning performance and encouraging deep understanding (Z. Liu, Yin, Cui, Xu, & Zhang, 2022). Ustadz Faiz mentions that this method can be accessed by santri of all ages, including those

with high busyness, making learning more inclusive. Ustadz Abdi also adds that online systems help santri who don't have listeners at home, because deposit processes can be done flexibly and easily accessed. This becomes one of the main advantages that keeps online tahfidz programs in demand.

Ustadz Faiz reveals challenges he faces include lack of direct supervision making santri more vulnerable to experiencing futur or decreased spirit. Decreased spirit/motivation often results in low levels of engagement and class participation (Saqr & López-Pernas, 2021). Ustadz Abdi confirms that online learning conditions enable some santri to easily make excuses due to direct supervision limitations. These challenges show the need for more structured supervision and follow-up systems to maintain santri discipline and commitment.

From guidance strategy perspectives, ustadz use participatory communication approaches to maintain santri engagement. This approach ensures that student voices are heard and considered in decision-making processes, encouraging a sense of ownership and responsibility in their learning journey (Messiou, de los Reyes, Potnis, Dong, & Rwang, 2025). Ustadz Faiz explains that he routinely talks with santri after deposits, asking about obstacles and complaints related to Qur'an memorization. This approach enables building good emotional relationships between teachers and santri, while serving as a means to understand obstacles they face in learning processes.

Teacher competency improvement efforts also become important attention. Ustadz Faiz suggests the need for regular assistance for musyrif (supervisors) so they don't experience decreased spirit in listening to santri memorization. This assistance is expected to maintain guidance quality, considering musyrif roles are vital in ensuring recitation and memorization accuracy of santri. Ustadz Abdi also adds that communication improvement becomes one of the strategies continuously implemented. Effective communication is very important for student engagement, which is a predictor of positive learning outcomes (Kraft & Dougherty, 2013). He consistently provides clear memorization assignments for next meetings, such as assigning memorization of specific suras with their verses. This strategy helps santri have measurable learning directions while motivating them to prepare deposits maximally.

Additionally, support from santri parents or guardians is considered very important in online tahfidz program success. Ustadz Abdi emphasizes the need for active roles of santri guardians in providing motivation and spirit, considering online learning requires additional supervision from home environments. Involvement of all parties, whether ustadz, musyrif, or santri guardians, becomes key to creating effective, sustainable tahfidz learning that can overcome online learning challenges.

CONCLUSION

This research shows that implementing online tahfidz programs through WhatsApp video calls at Wisma Huffazhul Quran Yogyakarta is effective in supporting learning flexibility and accessibility for santri across ages. Research findings reveal that santri affective aspects are characterized by comfort learning from home strengthened by ustadz and parent roles, while cognitive aspects are facilitated through talaqqi methods and scheduled murojaah despite internet network constraints. From behavioral perspectives, santri discipline is influenced by time management, family involvement, and remote supervision, though environmental distractions still exist. These results align with distance learning theory emphasizing collaborative roles between teachers, parents, and educational institutions in maintaining learning motivation and consistency. Academically, this research contributes to developing literature on technology-based tahfidz learning models relevant to contemporary Islamic education contexts.

It is suggested that ustadz and online tahfidz program managers strengthen collaborative communication between parents, institutions, and teachers, so santri supervision and motivation are better maintained. Additionally, developing asynchronous technology-based learning strategies and

more stable applications need consideration to overcome technical constraints. For future research, it is important to deepen studies of social, psychological, and learning environment aspects, and conduct respondent age categorization so findings are more specific and applicable.

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