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Analysis Of The Impact Of Digital Self-Regulation Deficit On The Quality And Productivity Of Al-Qur'an Memorization

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Abstract

This study aims to analyze the impact of digital self-regulation deficit on the quality and productivity of Al-Qur'an memorization among students at Rumah Tahfiz Darul Aulia. The study employed a qualitative phenomenological approach with data collection techniques including observation, in-depth interviews, and documentation. Data analysis followed the interactive model of Miles and Huberman, comprising data reduction, data presentation, and conclusion drawing. The results indicate that uncontrolled digital usage patterns among students characterized by prolonged duration, dominance of entertainment content, and usage during critical memorization periods significantly contribute to the emergence of self-regulation deficits. This deficit has a dual impact on students' tahfidz performance: in terms of memorization quality, it manifests as declining reading fluency, weakened memory retention, and reduced cognitive readiness during recitation sessions; and in terms of memorization productivity, it results in unmet daily ziyadah targets, inconsistent recitation schedules, and weakened intrinsic motivation. The study concludes that improving tahfidz performance in the digital era requires not only increasing memorization hours, but also strengthening students' self-regulation capacity to manage digital device use responsibly.

Keywords: Self-Regulation Deficit; Al-Qur'an Memorization (Tahfidz); Digital Technology.

Abstract

Penelitian ini bertujuan untuk menganalisis dampak defisit self regulation digital terhadap kualitas dan produktivitas hafalan Al-Qur'an santri di Rumah Tahfiz Darul Aulia. Penelitian menggunakan pendekatan kualitatif fenomenologi dengan teknik pengumpulan data melalui observasi, wawancara mendalam, dan dokumentasi. Analisis data mengikuti model interaktif Miles dan Huberman yang meliputi reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa pola penggunaan digital santri yang tidak terkendali, ditandai dengan durasi yang panjang, dominasi konten hiburan, dan penggunaan pada waktu-waktu kritis, berkontribusi signifikan terhadap kemunculan defisit self regulation. Defisit ini berdampak ganda

Kata Kunci: Deficit Self Regulation; Tahfidz Al-Qur'an; Teknologi Digital.

terhadap performa tahfidz santri, yakni dari sisi kualitas hafalan yang meliputi menurunnya kelancaran bacaan, melemahnya daya ingat, dan berkurangnya kesiapan kognitif saat setoran, serta dari sisi produktivitas hafalan yang mencakup tidak tercapainya target ziyadah harian, ketidakkonsistenan jadwal setoran, dan melemahnya motivasi intrinsik santri. Penelitian ini menyimpulkan bahwa peningkatan performa tahfidz di era digital tidak cukup hanya dengan menambah jam hafalan, melainkan harus disertai penguatan kapasitas regulasi diri santri dalam mengelola penggunaan perangkat digital secara bertanggung jawab.

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1. Introduction

The rapid advancement of information and communication technology, especially through smartphone devices and social media, has created a digital ecosystem that is almost inseparable from the routine of modern life (Sudibyo, 2022). However, behind these technological advances, an increasingly worrying phenomenon has emerged, namely the weakening of individuals' ability to control the use of digital media independently and responsibly. This phenomenon is known in the psychological literature as digital self-regulation deficit, which is a condition in which a person experiences a failure or decreased capacity to effectively regulate, limit, and direct his or her digital behavior (Sentana & Kumala, 2017). This deficit is characterized by the inability to delay the instant gratification of digital content, loss of control over the duration of use of the device, and difficulty focusing attention on activities that require high concentration and continuity.

One of the intellectual and spiritual activities that most requires high concentration, patience, and strong self-discipline is tahfidz Al-Qur'an the process of memorizing, preserving, and maintaining memorization of the Holy Qur'an. Tahfidz activity is not merely the memorization of ordinary text; it is a complex cognitive, emotional, and spiritual process. Researchers such as (Qomariyah et al., 2025) and (Arif & Rosyidi, 2024) affirm that the success of tahfidz depends greatly on one's ability to sustain focus (attention control), manage study time consistently, maintain intrinsic motivation, and build structured and disciplined habits (habit formation).

In this context, digital self-regulation deficit becomes a real threat to Qur'an memorizers. When a hafidz or hafidzah is unable to control the impulse to access social media, stream entertainment content, or excessively browse the internet, the cognitive capacity that should be dedicated to the memorization process becomes degraded.

Although research on self-regulation in the context of education has been quite developed, studies that specifically analyze the impact of digital self-regulation deficit on the quality and productivity of Qur'an memorization are still

limited. Several previous studies have discussed self-regulation and the practice of using gadgets in the context of formal schools and discussed quality rather than productivity (Azmy & Rahmawati, 2025), in addition to tending to discuss the influence of self-regulation on memorization achievement targets (Salsabila & Khusnia, 2024). However, studies that specifically interpret the perspective of digital psychology, especially the impact of digital self-regulation deficit on the quality and productivity of Qur'an memorization are still very limited. This gap is the starting point of this research, namely the need for an in-depth analysis of how uncontrolled digital behavior directly undermines the cognitive and motivational processes that underpin the success of tahfidz in the contemporary era.

This study aims to analyze in depth how the deficit of digital self-regulation has an impact on the quality and productivity of students' memorization of the Qur'an at Rumah Tahfiz Darul Aulia through a qualitative approach. The results of this research are expected to make a theoretical contribution to the development of the study of Islamic educational psychology in the digital era, as well as produce practical recommendations for tahfidz institution managers in designing policies for the use of digital technology that supports, not hinders, the process of memorizing the Qur'an optimally.

2. Methods

This study employed a qualitative research method with a phenomenological approach conducted at Rumah Tahfiz Darul Aulia as the research site, given that the institution has students who are actively undergoing the Al-Qur'an memorization program while simultaneously interacting with digital devices in their daily lives. Data collection was carried out through three main techniques: first, observation, in which the researcher directly observed students' memorization activities including ziyadah and muraja'ah sessions as well as digital device usage patterns within the Rumah Tahfiz Darul Aulia environment; second, in-depth interviews conducted semi-structurally with students as the main informants to explore their experiences, digital habits, and perceptions of the influence of device usage on the quality and productivity of their Qur'an memorization; and third, documentation, namely the collection of supporting data in the form of memorization progress records, student recitation books, daily activity schedules, and institutional policies related to digital technology usage. Data analysis followed the interactive model of Miles and Huberman, consisting of three stages: (1) data reduction to filter information according to the research focus, (2) data presentation in narrative and matrix forms to facilitate interpretation, and (3) conclusion drawing verified periodically throughout the research process.

3. Result and Discussion

Students' Digital Usage Patterns and the Emergence of Self-Regulation Deficit

The rapid development of digital technology has fundamentally changed the way individuals, including students, focus their attention and time. Digital

devices such as smartphones and tablets are now an inseparable part of daily life, even in the pesantren-based education environment. Ease of access to social media, entertainment platforms, and content, creates a stimulus that constantly competes with learning activities, including the process of memorizing the Qur'an which demands high concentration and consistency of time. In this context, self-regulation or the ability of individuals to manage impulses, emotions, and behaviors in order to achieve long-term goals is a crucial factor that determines the success of a student in the tahfiz program.

The pattern of students' digital use and the emergence of self-regulation deficits at Rumah Tahfiz Darul Aulia have a significant impact on the quality of concentration, time discipline, and productivity of memorization of the Qur'an that students live in their daily lives.

Based on the results of observations carried out in the Darul Aulia Tahfiz House, it can be seen that the pattern of use of digital devices among students shows quite striking variations. Some students are able to use gadgets proportionally and place them outside of memorization time. However, some others were seen accessing social media and entertainment content on the sidelines of the time that should be allocated for ziyadah and muraja'ah. Such students seem to be less cognitively prepared when the memorization session begins, as can be seen from the easily divided concentration and slow response when depositing.

These findings are in line with the concept of attention residue put forward by Sophie Leroy, where a person's attention does not fully shift to a new activity when he or she is still mentally connected to the previous digital activity. As a result, cognitive readiness to absorb and retain memorization is significantly reduced (Anwar et al., 2026). In addition, the researcher also observed that some students showed a compulsive pattern of gadget use, namely the tendency to continue to open applications even though there is no specific need. This behavior indicates a self-regulation deficit, which is a condition in which a person experiences a decrease in capacity to effectively regulate and limit their digital behavior (Baumeister & Vohs, 2007; Valkenburg et al., 2021).

Based on observational results conducted at Rumah Tahfiz Darul Aulia, students' digital device usage patterns showed considerable variation. Some students were able to use devices proportionally and put them away outside memorization time. However, others were observed accessing social media and entertainment content during periods that should have been allocated for ziyadah or muraja'ah. Such students appeared less cognitively prepared when memorization sessions began, evident from easily disrupted concentration and slow responses when asked to submit memorization.

Furthermore, the researcher also observed that some students exhibited compulsive device usage patterns a tendency to keep opening applications even without a specific purpose. This behavior indicates the presence of self-regulation deficit, a condition in which a person experiences a decline in their capacity to effectively regulate and limit their digital behavior.

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This aligns with what was expressed by one of the supervising teachers (Ustadzah) at Rumah Tahfiz Darul Aulia:

> *"Many students actually have good intentions and want to memorize seriously. But once they pick up their phone, they can forget about time. What was supposed to be just one thing ends up taking more than an hour. That is what makes their memorization targets often go unmet not because they are incapable, but because their time is spent elsewhere." (translated from Indonesian by the author)*

Based on the interview with the supervising teacher, it was found that digital self-regulation deficit directly impacts students' consistency and achievement of memorization targets. The supervising teacher noted that students who are unable to control their device usage tend to experience a decline in memorization enthusiasm, frequently miss recitation schedules, and show unsatisfactory muraja'ah results. She also explained that the issue is not solely about memorization ability, but rather about the students' inability to independently manage their time and attention amid the constant temptation of digital content.

In addition, the researcher also conducted in-depth interviews with several students. The students acknowledged that they were aware of the negative impact of device usage on their memorization quality, yet still found it difficult to control. One student with the initial S stated:

> *"I actually know that playing on my phone for too long is not good, especially after continuously scrolling through social media, I forget to add my memorization, and in the end when it's time to submit, there's nothing to submit or the target isn't met." (translated from Indonesian by the author)*

This statement was reinforced by a student with the initial T, who stated:

> *"I sometimes lose track of time when scrolling TikTok or opening Instagram, so the time for muraja'ah or adding memorization is wasted or forgotten. So when it's time to submit to the teacher, sometimes it's not solid or I've lost focus." (translated from Indonesian by the author)*

Other students also conveyed that the habit of using devices before memorization sessions makes it difficult to switch to the concentration mode required in the memorization process. This shows that self-regulation deficit not only impacts reduced memorization time, but also on students' cognitive readiness to engage in the memorization process itself. This condition aligns with the concept of ego depletion proposed by Baumeister & Vohs, in which self-

regulation capacity, continuously drained by the temptation of digital content, ultimately weakens students' overall self-control (Fakhri et al., 2024).

Based on observations, interviews, and documentation, it can be concluded that students' digital usage patterns at Rumah Tahfiz Darul Aulia are characterized by prolonged and unplanned duration, dominance of passive entertainment content consumption, and the habit of using devices during critical time periods that should have been allocated for memorization. These patterns collectively create conditions conducive to the emergence of self-regulation deficits among students. This indicates the need for more systematic guidance from the institution not only through external restrictions on device access, but also through strengthening students' internal self-regulation capacity so they are able to manage their digital behavior independently and responsibly.

The Impact of Digital Self-Regulation Deficit on the Quality and Productivity of Al-Qur'an Memorization

The process of memorizing the Qur'an is a high-level cognitive activity that demands not only intelligence, but also stability of attention, perseverance, and good self-management (Jamil & Rizqa, 2025). Quality memorization is not formed in a single intensive study session, but through gradual and consistent practice that allows material to be absorbed into long-term memory. In this process, students' cognitive condition before and during memorization sessions plays a highly determinative role. When this cognitive condition is disrupted by uncontrolled digital device use, the quality of memory encoding declines and memorized material becomes fragile and easily forgotten (Swasono, 2024).

Self-regulation deficit in the digital context directly undermines the two main pillars of memorization productivity: depth of concentration and continuity of study time (Afnan et al., 2025). Excessive exposure to digital content, particularly social media and entertainment, has been proven to increase cognitive load and weaken working memory the short-term memory system that plays an important role in the memorization process (HASAN, 2024). Students who are unable to regulate their device use tend to carry a "mental trace" of recently consumed content into their memorization sessions, so the cognitive energy available to process and store Qur'anic verses is greatly reduced. The accumulation of this condition not only impacts daily memorization but also threatens the attainment of long-term memorization targets set by the program (Mas’ ud et al., 2024).

The impact of digital self-regulation deficit on the quality and productivity of Al-Qur'an memorization among students at Rumah Tahfiz Darul Aulia has a considerable influence, both in terms of the quality of memorization produced and the consistency and achievement of memorization targets in students' daily activities.

Based on observations conducted at Rumah Tahfiz Darul Aulia, students with high and uncontrolled levels of device use showed memorization quality that tended to be unsatisfactory. These students appeared to more frequently make errors in verse pronunciation, forget the order of verses, and require more time to correct memorization that had previously been submitted. During muraja'ah sessions, they appeared less confident and often stopped midway through

recitation, indicating that the stored memorization had not truly settled firmly in their memory. Furthermore, in terms of productivity, memorization progress records obtained through documentation of students' recitation books showed stagnation and even regression in some students with the most uncontrolled digital usage patterns, while students who were more disciplined in managing their devices showed more consistent and progressive development graphs.

On the other hand, the researcher also observed that students who managed their digital usage well demonstrated better maintained memorization quality as well as higher productivity. They appeared calmer, focused during recitation, and able to routinely meet their daily ziyadah targets. This difference indirectly reveals that the ability to regulate digital usage is closely related to students' overall tahfidz performance, both in terms of quality and productivity.

This aligns with what was expressed by the supervising teacher at Rumah Tahfiz Darul Aulia:

> *"We can clearly see the difference. Students who can control their phone use have neater and better-preserved memorization, and their recitation is consistent. Conversely, those who frequently use their phones until late at night or come straight to recitation after playing on their phones often produce disappointing results with inconsistent submission. Not because they are not intelligent, but their mind is not ready and their time has been spent elsewhere." (translated from Indonesian by the author)*

In addition, the researcher also conducted in-depth interviews with several students regarding their experiences. The students acknowledged that the habit of using devices excessively has a dual impact on their memorization reducing cognitive readiness while simultaneously eroding the time available for memorization. One student with the initial I stated:

> *"After spending a long time on my phone and then immediately trying to memorize, it feels like my head is full but empty. I already memorized it yesterday, but when I try to recall it again, it's like it's gone. On top of that, the time is already running short, so the memorization isn't optimal." (translated from Indonesian by the author)*

This statement was also reinforced by a student with the initials S, who revealed:

> *"Sometimes I can't manage the time between when I have to memorize or repeat the lesson (muroja'ah) and when I have to use my mobile phone. Because of this, I ended up wasting time by scrolling through TikTok and Instagram watching entertainment content, so I often forgot about time. As a result, I was unable to reach my memorization targets." (translated from Indonesian by the author)*

Other students also said that memorization targets that are not achieved in one day tend to accumulate and become more difficult to pursue in the following days, creating a psychological burden that ultimately lowers their overall motivation. This shows that the deficit of digital self-regulation not only damages the quality of cognitive processes needed in memorization, but also touches the motivational dimension that is the main driver of student productivity.

These findings are in line with research (Tsani et al., 2025) which shows that scroll culture contributes to a decrease in attention span, an increase in the tendency to shallow thinking, and the occurrence of brain overstimulation due to continuous exposure to short information. Emotional attachment to notifications and fear of missing out (FOMO) worsens students' ability to maintain deep concentration. This is also supported by findings (Suryana et al., 2024) which confirm that the success of tahfidz is highly dependent on the ability to maintain focus, maintain intrinsic motivation, and build structured learning habits of three things that are directly degraded by uncontrolled digital usage patterns.

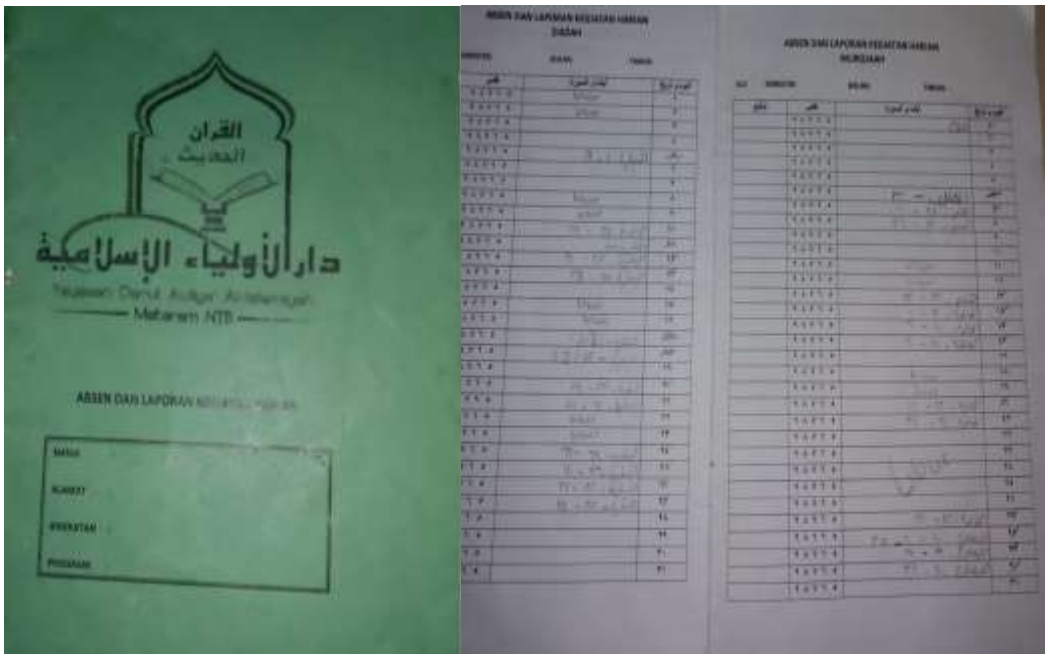
Based on observations, interviews, and documentation of students' memorization progress records, it can be concluded that digital self-regulation deficit has a real impact on the quality and productivity of Al-Qur'an memorization among students at Rumah Tahfiz Darul Aulia. In terms of quality, the impact includes declining reading fluency, weakened memory retention of previously acquired memorization, and reduced cognitive readiness of students in undergoing recitation sessions. In terms of productivity, the impact encompasses unmet daily ziyadah targets, inconsistency in recitation schedules, and weakened intrinsic motivation due to the accumulation of delayed targets. This indicates that improved tahfidz performance cannot be achieved solely through adding memorization hours or increasing practice intensity, but must begin with strengthening students' self-regulation capacity in managing their digital device use more responsibly and in a planned manner.



(a) Interview with supervising teacher (Ustadzah) at Rumah Tahfiz Darul Aulia (2026)



(b) Interview with students (Santri) at Rumah Tahfiz Darul Aulia (2026)



(c) Report on the results of the memorization of students at Rumah Tahfiz Darul Aulia (2026)

4. Conclusion

Based on the results of research conducted at Rumah Tahfiz Darul Aulia, it can be concluded that digital self-regulation deficit has a real and significant impact on the quality and productivity of students' Al-Qur'an memorization.

First, students' digital usage patterns characterized by prolonged and unplanned duration, dominance of passive entertainment content consumption,

and the habit of using devices during critical time periods that should be allocated for memorization have been proven to be the primary factor triggering the emergence of self-regulation deficit. This condition is compounded by the gap between students' awareness of the negative impacts of digital usage and their actual ability to control it.

Second, in terms of memorization quality, digital self-regulation deficit impacts declining reading fluency, weakened memory retention of previously acquired memorization, and poor cognitive readiness of students in undergoing recitation sessions. Additionally, in terms of memorization productivity, its impact encompasses unmet daily ziyadah targets, inconsistency in recitation schedules, and weakened intrinsic motivation due to accumulation of delayed targets. This condition creates psychological burden that further worsens students' enthusiasm and consistency in sustainably undertaking the tahfidz program.

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