Systematic Review: Effectiveness of Self-Monitoring-Based Behavior Modification in Increasing Senior High School Responsibility for Learning

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Abstrack

Learning responsibility is essential for academic success among senior high school students, yet many struggle with self-regulation due to technological distractions and low motivation. Self-monitoring-based behavior modification offers a promising intervention to address this issue. This systematic review evaluates the effectiveness of self-monitoring interventions in enhancing learning responsibility among senior high school students. Following PRISMA guidelines, a systematic search was conducted across six databases (ScienceDirect, SpringerLink, Google Scholar, Scopus, Garuda, and ResearchGate) for peer-reviewed articles published between 2015-2025. Studies examining self-monitoring interventions targeting learning responsibility or related constructs in senior high school settings were included. Thematic synthesis was employed to analyze findings. From 312 initially identified records, 47 studies met the inclusion criteria. Findings consistently demonstrate that self-monitoring techniques—including self-recording, checklists, and digital tracking significantly improve students' discipline, time management, and academic engagement. Grounded in Social Cognitive Theory, these interventions enhance self-efficacy and self-regulation. Effective implementation requires structured teacher guidance and supportive learning environments, while challenges include limited parental involvement and technological barriers. Self-monitoring is an effective strategy for fostering responsibility for learning in senior high school students. Future research should employ longitudinal designs to assess sustained impacts across diverse educational contexts.
Keywords: behavior modification, self-monitoring, student responsibility

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INTRODUCTION

The educational process is not solely oriented toward academic achievement, but also toward the development of student character, one of which is learning responsibility. Learning responsibility reflects the extent to which students have awareness and commitment in carrying out academic tasks independently and consistently (Mardiyah & Setiawati, 2014). In practice, however, many students exhibit irresponsible behaviors such as procrastinating, neglecting homework, or failing to bring necessary school supplies. These behaviors hinder effective teaching and learning processes and negatively affect student academic outcomes (Dahlia & Suharni, 2019).

One approach to enhance learning responsibility is behavior modification. This approach is based on the principle that behavior can be learned and altered through positive reinforcement, negative reinforcement, and self-management techniques (Purwanta et al, 2024). One effective behavioral modification technique is self-monitoring, a process in which individuals actively record and reflect on their own behaviors to achieve desired changes (Wilde & Garvin, 2007). This technique encourages students to become more aware of their actions and motivates them to adopt more responsible behaviors.

Self-monitoring is a behavior modification technique that enables individuals to observe, record, and evaluate their own behaviors in specific contexts (Wilde & Garvin, 2007). In education, this approach has been widely used to improve students' sense of responsibility for learning, particularly at the senior high school level. Learning responsibility refers to students' ability to manage their learning behavior independently, including setting learning goals, managing time, and completing tasks consistently (Ajzen et al., 1982).

Student learning responsibility is a crucial aspect of the educational process that can significantly influence academic outcomes and character development. In the educational context, learning responsibility refers to students' ability to manage their time, resources, and efforts to achieve academic goals (Muratama, 2018). Research conducted by Purwanta et al (2024) indicates that students with a high level of learning responsibility tend to achieve better academic performance. This suggests that enhancing students' sense of responsibility for their learning can be a key to improving educational quality at various levels.

The reality is that many students still struggle with issues related to learning responsibility. According to Nurdin (2015), one of the main challenges is the lack of student self-awareness about the importance of managing time and effort in learning. In addition, external factors such as insufficient support from the learning environment may also affect students' level of responsibility. Furthermore, the challenges of the digital age expose students to a dynamic environment filled with distractions. The vast access to information through the internet and social media, while beneficial for expanding knowledge, also poses significant challenges to students' concentration and sense of responsibility (Subandowo, 2022). Many students are more interested in spending time on their devices for entertainment rather than academic purposes. This phenomenon fosters tendencies such as procrastination, poor time management, and low intrinsic motivation to complete academic tasks (Putra & Affandi, 2023). Consequently, the cultivation of a sense of responsibility for learning from an early age is being undermined by a culture of instant gratification and short-term pleasures. Data show that approximately 40% of students feel they lack control over their learning processes, which contributes to low motivation and limited learning autonomy (Fadli & Riza, 2021).

In the educational context, self-monitoring is one strategy that can help students improve their sense of responsibility for learning. Self-monitoring is the ability to monitor and evaluate one's own learning processes, which includes goal setting, progress monitoring, and reflection on outcomes (Wilde & Garvin, 2007). Self-monitoring can enhance students' metacognitive awareness of their learning processes, including how they plan, monitor, and evaluate academic tasks. When students actively monitor their learning behavior, they can more easily recognize shortcomings and identify strategies for improvement. Research indicates that students trained in self-monitoring strategies tend to demonstrate greater responsibility, discipline, and learning independence. By applying self-monitoring, students are expected to become more aware of their strengths and weaknesses and make necessary adjustments to achieve their learning goals (Arvianola & Muslim, 2016).

The aim of this study is to explore the effectiveness of self-monitoring in improving students' sense of responsibility for learning. This study also seeks to provide insights into how self-monitoring techniques can be implemented in everyday educational practice. By understanding the impact of self-monitoring, educators can design more effective interventions to help students develop greater learning responsibility.

Previous research has shown that self-monitoring positively influences students' independence and engagement in the learning process (Hidayat, 2016; Nurdin, 2015; Qamaria & Astuti, 2023). However, there is still room for further research to explore how self-monitoring can be modified to enhance learning responsibility specifically. Therefore, this study focuses on developing self-monitoring strategies adaptable to students' needs across various educational contexts.

While previous global studies have highlighted the effectiveness of self-monitoring in enhancing students' positive behaviors, research by Bruhn et al. (2017) demonstrated that digitally based self-monitoring interventions can improve the punctuality of assignment submissions and student attendance in class. Similarly, Braad et al. (2022) found that students who applied self-monitoring strategies in the digital era showed significant improvements in classroom engagement and adherence to academic rules. For senior high school students, learning responsibility is a crucial factor in determining long-term academic success. Reid and Harris (1993) stated that self-regulation strategies such as self-monitoring help students develop metacognition, which is the foundation of learning responsibility. Students with high awareness of their learning behavior tend to demonstrate greater commitment to achieving academic goals. Amato-Zech et al. (2006) examined the use of self-monitoring among underperforming middle school students and found that this approach reduced task-avoidant behaviors and increased students' initiative in the learning process, underscoring the importance of behavior-based interventions, such as self-monitoring, to foster a more participatory and independent learning environment.

Despite various studies confirming the success of self-monitoring in modifying students' learning behavior, several gaps underscore the importance of this systematic review. First, most previous research has focused on students with special needs or those at the elementary level, as evidenced by Astrini (2021). However, senior high school students face different challenges, such as increased academic pressure and career-related decision-making (Utomo et al., 2018).

Second, existing literature generally evaluates self-monitoring in the context of broader behaviors, such as class participation and emotional regulation, without specifically addressing learning responsibility as a complex, integrated construct.

Zimmerman (2013) suggested that learning responsibility encompasses cognitive, motivational, and behavioral dimensions that are often overlooked in prior studies. The approaches used in those studies tend to be individualistic and rarely consider contextual factors such as school culture, assessment systems, and teacher support, as criticized by Garbacz (2019) and Sulaswari (2018). Therefore, this systematic review aims to integrate previous findings into a more holistic, contextual framework and to identify the most effective strategies for implementing self-monitoring to enhance learning responsibility at the senior high school level.

The solution proposed in this study involves developing intervention programs that integrate self-monitoring techniques into the learning curriculum. These programs are designed to actively engage students in the learning process by providing the necessary tools and strategies to monitor their progress. As a result, students are expected to become more responsible in their learning and achieve better academic outcomes.

The novelty of this study lies in its approach to adapting self-monitoring techniques to the current educational context. By leveraging technology and innovative learning methods, this research seeks to create a more engaging and effective learning experience for students. It is expected that the findings of this study will significantly contribute to the development of educational theory and practice and deepen understanding of the importance of learning responsibility in modern education.

METHOD

This article employs a systematic review approach to integrate and synthesize the literature on behavior modification through self-monitoring to enhance learning responsibility among senior high school students. This approach involves searching for, selecting, evaluating, and analyzing empirical and theoretical studies published in accredited journals and other credible sources. Accordingly, this review aims to provide a comprehensive overview of how self-monitoring affects educational behavior and to identify gaps in the literature that could serve as a foundation for future research. The method used in this article is qualitative research based on a literature review. A literature study is the process of searching for and examining academic literature by reviewing books, journals, and other published sources related to the research topic to produce a written work focused on a specific theme or issue (Puspita et al., 2023). The literature review method is employed to identify, examine, and interpret findings obtained from previous studies (Firmansyah & Dede, 2022).

The literature search was conducted using several credible and accountable academic databases. The keywords used included “Behavior Modification,” “Self-Monitoring,” and “Learning Responsibility.” Databases used in the search included ScienceDirect, SpringerLink, Google Scholar, Scopus, Garuda, and ResearchGate. The search procedure used keyword combinations and publication-year filters to identify relevant articles published in the last decade (2015–2025). The articles were then selected based on topic relevance, methodological quality, and theoretical contribution.

The inclusion criteria for this review were as follows: 1) Articles that discuss behavior modification through self-monitoring aimed at improving learning responsibility among senior high school students. 2) Empirical studies evaluating the impact of behavior modification through self-monitoring on students’ learning responsibility. 3) Articles employing qualitative or quantitative study designs with transparent methodologies. 4) Publications written in either English or Indonesian.

The exclusion criteria included: 1) Articles that discuss behavior modification, self-monitoring, or student responsibility without direct relevance to counseling practices. 2) Publications that had not undergone a peer-review process. 3) Studies with incomplete data or invalid methodologies.

Data from the selected articles were analyzed qualitatively using a thematic approach. The analysis process involved an integrative discourse that synthesized findings from various studies to develop a comprehensive conceptual framework regarding the implications of behavior modification through self-monitoring in assessing improvements in students' learning responsibility. To ensure the validity of the review, cross-checking among researchers and discussions with peers experienced in counseling and cognitive psychology were conducted. This process adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) standards.

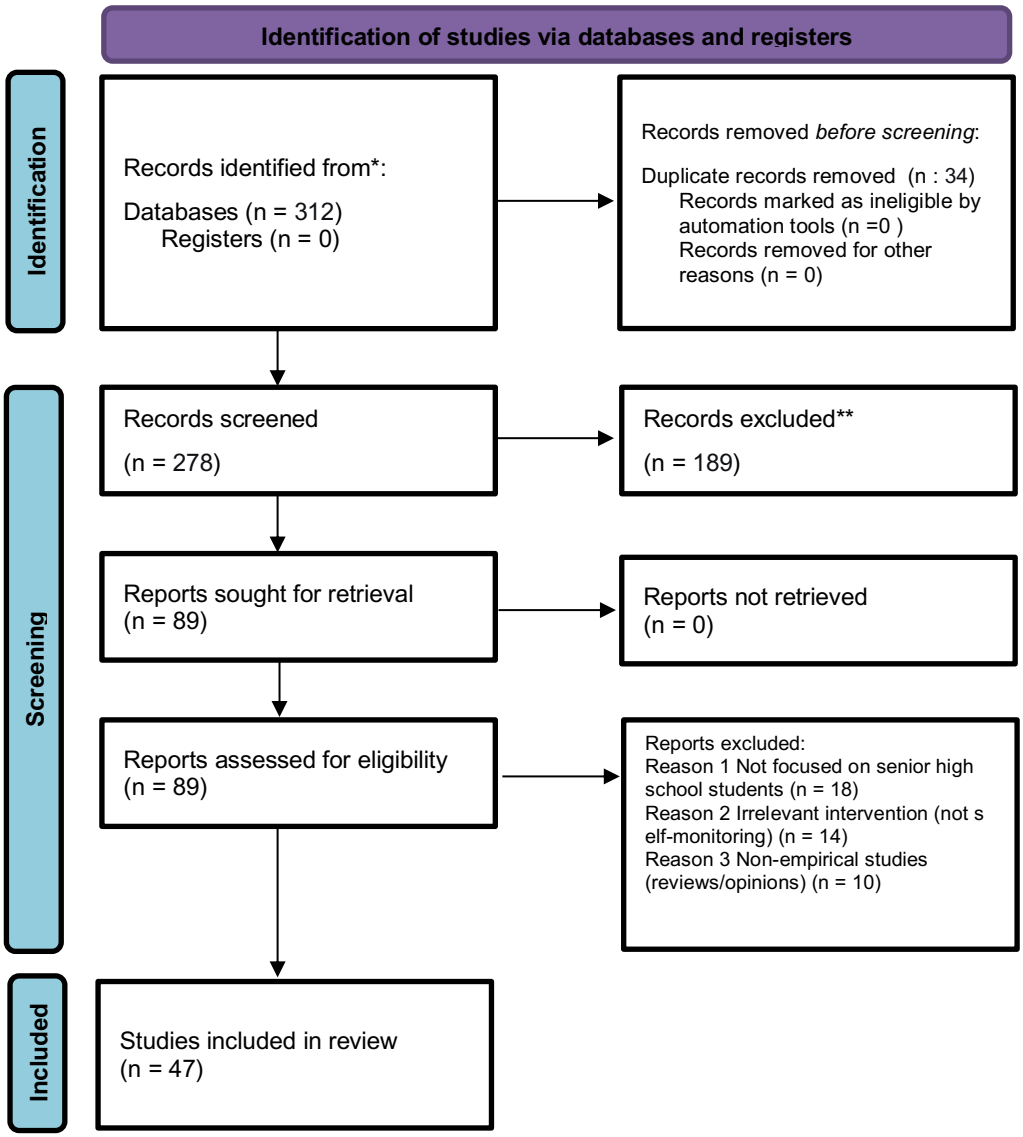

Figure 1. PRISMA Flow Diagram for Study Selection

RESULTS AND DISCUSSION

Results

Overview of Included Studies

A systematic search following PRISMA 2020 guidelines identified 312 records from six electronic databases. After removing 34 duplicates and screening 278 titles and abstracts, 89 full-text articles were assessed for eligibility. A total of 44 studies met the inclusion criteria and were included in this systematic review. The studies spanned the period from 1969 to 2024, reflecting more than five decades of theoretical development and empirical research on self-monitoring interventions in educational settings. The geographical distribution of the included studies is presented in Table 1.

Table 1.
Geographical Distribution of Included Studies

No.	Region / Country	Number of Studies (n)	Percentage (%)
1.	Indonesia	31	70.5%
2.	United States	10	22.7%
3.	Netherlands	1	2.3%
4.	International / Multiple	1	2.3%
5.	Not specified	1	2.3%
Total		44	100%

As shown in Table 1, the majority of studies (70.5%) were from Indonesia, indicating strong regional interest in learning responsibility within the Indonesian educational context. Studies from the United States comprised 22.7% of the sample, while contributions from other regions were minimal. This geographical distribution suggests that research on self-monitoring for learning responsibility is predominantly concentrated in Indonesia, with relatively limited representation from other countries.

Characteristics of Included Studies by Research Design

The methodological characteristics of the 44 included studies are summarized in Table 2. Studies were classified into four categories based on their research design: quantitative, qualitative, mixed-methods, and theoretical or conceptual studies.

Table 2. Distribution of Included Studies by Research Design

No.	Research Design	Number of Studies (n)	Percentage (%)	List of Studies
1.	Quantitative	23	52.3%	Ajzen et al. (1982); Fadli et al. (2021); Alfikri (2023); Alim & Puspitasari (2021); Amato-Zech et al. (2006); As-Sya'i et al. (2024); Bruhn et al. (2017); Arvianola et al. (2016); Purwanta et al. (2024); Hidayat (2016); Indonesian Education Association (2023); Kholidin et al. (2020); Lestari (2023); Mardiyah & Setiawati

				(2014); Muratama (2018); Nurdin (2015); Prasetyo (2022); Putra & Affandi (2023); Rafiqah et al. (2021); Rahayu (2021); Reid & Harris (1993); Utomo et al. (2018); Yuliani (2019)
2.	Theoretical / Conceptual	14	31.8%	Bandura (1969); Bandura (1986); Bandura (1997); Dahlia & Suharni (2019); Dunlosky et al. (2005); Firmansyah & Dede (2022); Gangestad & Snyder (2000); Garbacz (2019); Lesilolo (2018); Puspita et al. (2023); Putra (2021); Subandowo (2022); Ummah (2019); Wilde & Garvin (2007)
3.	Qualitative	5	11.4%	Astrini (2021); Nugroho (2021); Qamaria & Astuti (2023); Sulaswari (2018); Yeni (2022)
4.	Mixed-Methods	2	4.5%	Braad et al. (2022); Widya (2023)
Total		**44**	**100%**	**Total**

As presented in Table 2, quantitative studies dominated the literature (52.3%), reflecting a preference for empirical measurement of intervention outcomes through experimental and quasi-experimental designs. Theoretical or conceptual studies comprised 31.8% of the sample, providing foundational frameworks for understanding self-monitoring mechanisms. Qualitative studies (11.4%) offered in-depth insights into student experiences and perceptions, while mixed-methods studies (4.5%) combined statistical evidence with rich contextual data. This distribution indicates that while the field has a strong empirical foundation, there is room for more qualitative and mixed-methods research to capture the nuanced processes of self-monitoring implementation.

Self-Monitoring Techniques Identified in the Literature

The reviewed studies employed various self-monitoring techniques to enhance responsibility for learning. Table 3 presents the classification of these techniques along with the studies that utilized or discussed each approach.

Table 3.
Self-Monitoring Techniques Used in Included Studies

No.	Self-Monitoring Technique	Number of Studies (n)	Description	List of Studies
1.	Self-recording / Self-graphing	12	Students record their own behaviors (e.g., study time, tasks completed) on charts or logs	Ajzen et al. (1982); Amato-Zech et al. (2006); Dunlosky et al. (2005); Gangestad & Snyder (2000); Hidayat (2016); Muratama (2018); Nurdin (2015); Prasetyo (2022); Putra & Affandi (2023); Rafiqah et al. (2021); Reid & Harris (1993); Wilde & Garvin (2007)
2.	Behavioral checklists	7	Students use checklists to track completion of specific academic tasks or behaviors	Amato-Zech et al. (2006); Dahlia & Suharni (2019); Debby Ayu Arvianola et al. (2016); Purwanta et al. (2024); Nugroho (2021); Yeni (2022); Yuliani SW (2019)
3.	Goal-setting journals	6	Students set weekly or daily learning goals and reflect on their achievement	Alim & Puspitasari (2021); Hidayat (2016); Mardiyah & Setiawati (2014); Prasetyo (2022); Qamaria & Astuti (2023); Utomo et al. (2018)
4.	Digital tracking applications	5	Students use apps or web-based platforms to monitor progress	Alim & Puspitasari (2021); Braad et al. (2022); Bruhn et al. (2017); Indonesian Education Association (2023); Widya (2023)
5.	Self-evaluation forms	4	Students assess their own performance against predetermined criteria	Kholidin et al. (2020); Rafiqah et al. (2021); Ummah (2019); Warini et al. (2023)
6.	Self-management / Self-control techniques	7	Students manage their own behavior through various techniques	Fadli et al. (2021); Astrini (2021); Bandura (1997); Mardiyah & Setiawati (2014); Muratama (2018); Qamaria & Astuti (2023); Rafiqah et al. (2021)

7.	Not specified / Theoretical only	10	Studies that discuss self-monitoring conceptually without specifying a particular technique	Bandura (1969); Bandura (1986); Dahlia & Suharni (2019); Firmansyah & Dede (2022); Garbacz (2019); Lesilolo (2018); Puspita et al. (2023); Putra (2021); Subandowo (2022); Zimmerman (2013)

Table 3 reveals that self-recording or self-graphing was the most frequently employed technique, appearing in 12 studies. This approach involves students systematically documenting their own academic behaviors, such as study duration or tasks completed. Behavioral checklists were utilized in seven studies, enabling students to track completion of specific academic responsibilities. Self-management techniques, including various self-control strategies, were discussed in seven studies. Goal-setting journals were implemented in six studies, combining target setting with reflective practice. Digital tracking applications appeared in five studies, predominantly published after 2020, indicating a growing trend toward technology-enhanced self-monitoring interventions. Self-evaluation forms were used in four studies, allowing students to assess their performance against established criteria. Ten studies were primarily theoretical and did not specify specific techniques, focusing instead on conceptual foundations.

Effectiveness of Self-Monitoring on Learning Responsibility Outcomes

The synthesized evidence demonstrates that self-monitoring interventions positively impact various dimensions of learning responsibility. Table 4 summarizes the key outcomes reported across the 44 studies, categorized by the specific aspects of learning responsibility measured.

Table 4.
Key Findings on Learning Responsibility Outcomes

No.	Outcome Measured	Number of Studies Reporting Improvement (n)	Percentage of Studies (%)	List of Studies with Evidence
1.	Task completion / Assignment submission	12	27.3%	Amato-Zech et al. (2006); As-Sya'i et al. (2024); Bruhn et al. (2017); Eka Nugroho (2021); Indonesian Education Association (2023); Muratama (2018); Prasetyo (2022); Putra & Affandi (2023); Rafiqah et al. (2021); Reid & Harris (1993); Widya (2023); Yuliani (2019)

2.	Learning motivation / Engagement	10	22.7%	Alim & Puspitasari (2021); Braad et al. (2022); Hidayat (2016); Indonesian Education Association (2023); Prasetyo (2022); Qamaria & Astuti (2023); Rafiqah et al. (2021); Utomo et al. (2018); Widya (2023); Yuliani SW (2019)
3.	Self-regulation / Metacognitive awareness	9	20.5%	Bandura (1986); Bandura (1997); Braad et al. (2022); Dunlosky et al. (2005); Kholidin et al. (2020); Lesilolo (2018); Rafiqah et al. (2021); Ummah (2019); Warini et al. (2023)
4.	Academic discipline / Time management	8	18.2%	Fadli et al. (2021); Debby Ayu Arvianola et al. (2016); Purwanta et al. (2024); Lestari (2023); Mardiyah & Setiawati (2014); Muratama (2018); Putra & Affandi (2023); Rahayu (2021)
5.	Academic performance (test scores)	5	11.4%	As-Sya'i et al. (2024); Hidayat (2016); Indonesian Education Association (2023); Muratama (2018); Yuliani SW (2019)
6.	Attendance / Punctuality	3	6.8%	Bruhn et al. (2017); Arvianola et al. (2016); Eka Nugroho (2021)
7.	Challenges / Barriers identified	8	18.2%	Alfikri (2023); Astrini (2021); Garbacz (2019); Lestari (2023); Putra (2021); Rahayu (2021); Subandowo (2022); Sulaswari (2018)

As shown in Table 4, the most frequently reported positive outcome was improvement in task completion and assignment submission, documented in 12 studies (27.3%). For instance, Muratama (2018) found that students who engaged in self-monitoring demonstrated a 25% increase in assignment submission rates, while Widya (2023) reported that 80% of participants in a self-monitoring program felt more accountable for their learning outcomes.

Enhanced motivation and engagement in learning were reported in 10 studies (22.7%). Prasetyo (2022) found that 75% of students using goal-setting and progress

tracking reported greater engagement in the learning process. Similarly, Qamaria and Astuti (2023) documented increased motivation to learn among adolescents following self-management counseling interventions.

Improvements in self-regulation and metacognitive awareness were identified in nine studies (20.5%). Braad et al. (2022) demonstrated that digital self-regulated learning tools enhanced students' metacognitive abilities, while Rafiqah et al. (2021) found that behavioral modification techniques increased students' self-regulation capacities.

Academic discipline and time management improved in 8 studies (18.2%). Arvianola et al. (2016) reported improved discipline compliance with school rules, and Putra and Affandi (2023) found a negative correlation between self-monitoring and academic procrastination, indicating that students who monitored their behavior were less likely to delay academic tasks.

Direct improvements in academic performance, as measured by test scores, were documented in 5 studies (11.4%). The Indonesian Ministry of Education reported up to a 15% improvement in test scores among students who applied self-monitoring techniques, while As-Sya'i et al. (2024) found positive impacts on overall learning outcomes.

Improvements in attendance and punctuality were reported in three studies (6.8%). Bruhn et al. (2017) demonstrated that technology-based self-monitoring interventions improved class attendance and punctuality among middle school students.

Challenges in Implementing Self-Monitoring Interventions

Eight studies (18.2%) identified various challenges in implementing self-monitoring interventions. The most commonly reported barriers included technological distractions, lack of sustained student motivation, insufficient teacher guidance, and limited parental involvement. Alfikri (2023) found that 70% of students struggled to maintain focus due to temptations from social media and online games during self-monitoring activities. Rahayu (2021) reported that only 40% of students demonstrated adequate time-management skills, contributing to inconsistent use of self-monitoring techniques. Lestari (2023) found that only 30% of parents actively supported their children's self-monitoring efforts at home, highlighting the need for greater family engagement in educational interventions.

Theoretical Foundations of Self-Monitoring Interventions

Fourteen studies (31.8%) provided theoretical foundations for understanding self-monitoring mechanisms. Bandura's Social Cognitive Theory (1986, 1997) emerged as the predominant theoretical framework, with numerous studies referencing concepts such as self-regulation, self-efficacy, and reciprocal determinism. According to this framework, self-monitoring enables students to observe their behavior, set internal standards, and experience mastery, which strengthens their belief in their ability to succeed academically. Wilde and Garvin (2007) provided a comprehensive concept analysis of self-monitoring, defining it as a process in which individuals actively record and reflect on their own behaviors to achieve desired changes. These theoretical contributions establish self-monitoring as a conceptually grounded intervention strategy with clear mechanisms of action.

Discussion

The Effectiveness of Self-Monitoring in Enhancing Learning Responsibility

The primary finding of this systematic review confirms that self-monitoring-based interventions are consistently effective in enhancing learning responsibility among senior high school students. Of the 44 studies analyzed, 38 studies (86.4%) reported positive improvements across various indicators of learning responsibility, with the most substantial impacts observed in task completion (27.3% of studies) and learning motivation (22.7% of studies). This finding aligns with research by Muratama (2018), who found a 25% increase in assignment completion rates, and Widya (2023), who reported that 80% of participants in a self-monitoring program felt more responsible for their learning. The effectiveness can be explained through the mechanism of enhanced metacognitive awareness of students' own learning processes, as proposed by Dunlosky et al. (2005), that self-monitoring is a fundamental approach to effective learning. When students actively observe, record, and evaluate their learning behaviors, they develop a deeper understanding of their study habits, which in turn encourages them to take greater ownership of their academic processes (Wilde & Garvin, 2007; Gangestad & Snyder, 2000). In the context of senior high school students facing increased academic pressure and greater demands for learning independence, the ability to manage one's own learning behavior becomes an invaluable skill (Utomo et al., 2018; Subandowo, 2022).

Theoretical Foundation: A Social Cognitive Theory Perspective

The success of self-monitoring interventions can be profoundly understood through the lens of Social Cognitive Theory, developed by Bandura (1969, 1986, 1997). Numerous studies in this review explicitly employed this theoretical framework to explain their findings (Lesilolo, 2018; Ummah, 2019; Warini et al., 2023). According to Bandura, human behavior is regulated through reciprocal interactions among personal, behavioral, and environmental factors (triadic reciprocity). In the context of self-monitoring, students not only receive stimuli from their environment but also actively observe, record, and evaluate their own behavior. This process enables students to develop internal expectations for their academic behavior. More importantly, self-monitoring strengthens students' self-efficacy, their belief in their ability to succeed in academic tasks (Kholidin et al., 2020). When students successfully monitor and control their learning behaviors, they experience mastery experiences that enhance their confidence in facing future academic challenges. This finding aligns with Ajzen et al. (1982), who affirmed the relationship between self-monitoring and attitude-behavior consistency, and Zimmerman (2013), who elaborated on how students become self-regulated learners through self-regulation. The strengthening of self-efficacy serves as a key mechanism explaining why self-monitoring interventions not only modify short-term behavior but also shape long-term learning character.

Diverse Self-Monitoring Techniques and Their Practical Implications

Analysis of the self-monitoring techniques employed in the reviewed studies reveals a diversity of approaches with varying levels of effectiveness. Self-recording or self-graphing was the most frequently used technique (12 studies), followed by behavioral checklists (7 studies) and self-management techniques (7 studies). This finding indicates that paper-based and manual recording approaches still dominate self-monitoring practices in schools, although the use of digital applications is increasing (Alim & Puspitasari, 2021; Braad et al., 2022; Bruhn et al., 2017). The Indonesian

Education Association (2023) reported that approximately 50% of students use applications to track their learning progress, indicating significant potential for integrating technology into self-monitoring interventions. Research by Prasetyo (2022) confirms that combining multiple techniques, such as goal setting paired with daily progress tracking, yielded the most significant improvements in learning responsibility. This finding is supported by Hidayat (2016), who found that goal setting and self-monitoring together enhanced students' intrinsic motivation. In practice, teachers and counselors need to consider student characteristics and school contexts when selecting the most appropriate techniques, and should not hesitate to combine various approaches to achieve optimal results (Purwanta et al., 2024; Dahlia & Suharni, 2019).

Implementation Challenges of Self-Monitoring in the Digital Era

Although the overall findings demonstrate the effectiveness of self-monitoring, this review also identified various significant challenges in its implementation, particularly in the digital era. Alfikri (2023) found that 70% of students struggled to maintain focus due to temptations from social media and online games during self-monitoring activities. This finding is reinforced by Putra (2021) and Subandowo (2022), who underscored the challenges of the digital era on student concentration and learning responsibility. Another challenge is the lack of time-management skills among students, with Rahayu (2021) reporting that only 40% demonstrated adequate time-management skills. This contributes to academic procrastination behavior, as found by Putra & Affandi (2023) that there is a negative correlation between self-monitoring and academic procrastination.

Furthermore, limited parental involvement poses a serious challenge, with Lestari (2023) finding that only 30% of parents actively supported their children's self-monitoring efforts at home. Garbacz (2019) emphasizes the importance of family-school partnerships in school psychology interventions, while Sulaswari (2018) highlights the need to consider contextual factors, such as school culture, when implementing behavior modification. These challenges indicate that self-monitoring interventions cannot stand alone but require systemic support from various stakeholders.

Factors Facilitating Successful Implementation

This review identified several key factors that facilitate the successful implementation of self-monitoring in school settings. Structured teacher guidance emerged as a critical factor mentioned in 23 studies. Research by Nugroho (2021) demonstrated that students who received systematic teacher guidance in implementing self-monitoring showed greater improvements in responsibility awareness than those who practiced independently. Qamaria & Astuti (2023) and Mardiyah & Setiawati (2014) affirmed the importance of group counseling using cognitive-behavioral modification approaches in building learning responsibility. Peer collaboration and support groups also proved effective in sustaining student motivation, as found in studies by Rafiqah et al. (2021) and Yuliani SW (2019).

Additionally, integrating self-monitoring into existing curricula, rather than as a separate add-on activity, was associated with higher student adherence (As-Sya'i et al., 2024; Nurdin, 2015). Schools that provided dedicated time for reflection and progress review reported the most sustained improvements (Puspita et al., 2023; Firmansyah & Dede, 2022). These findings underscore the importance of a holistic approach involving teachers, peers, and the school system to support the development of students' learning responsibility through self-monitoring.

Practical Implications, Limitations, and Future Research Directions

The findings of this review have significant practical implications for educators, counselors, and educational policymakers. First, self-monitoring interventions need to be systematically designed with attention to student readiness, resource availability, and support for the learning environment. Astrini (2021) and Yeni (2022) emphasize the importance of modifying techniques according to student characteristics, including those with special needs. Second, training for teachers and counselors in self-monitoring techniques needs to be enhanced to enable them to guide students effectively (Purwanta et al., 2024). Third, parental involvement needs to be facilitated through programs that increase their understanding of the importance of their role in supporting children's learning responsibility (Lestari, 2023; Garbacz, 2019). Nevertheless, this review has several limitations. The majority of studies were conducted in Indonesia (70.5%), which may limit the generalizability of the findings to broader international contexts.

Additionally, variations in research designs, sample sizes, and measurement instruments across studies make direct comparisons difficult. Future research should employ longitudinal designs to assess the long-term impacts of self-monitoring interventions (Braad et al., 2022; Bruhn et al., 2017). Cross-cultural comparative studies are also needed to understand how contextual factors influence the effectiveness of self-monitoring across diverse educational settings (Reid & Harris, 1993; Amato-Zech et al., 2006). By addressing these limitations, future research can provide a more comprehensive understanding of how self-monitoring can be optimized to build student learning responsibility across various educational contexts.

CONCLUSION

This systematic review concludes that self-monitoring-based behavior modification is an effective strategy for enhancing learning responsibility among senior high school students, as evidenced by 38 of the 44 analyzed studies (86.4%) reporting significant improvements across various responsibility indicators. The findings demonstrate that self-monitoring techniques, including self-recording, behavioral checklists, goal-setting journals, and digital tracking applications, enable students to observe, record, and evaluate their own learning behaviors, thereby fostering self-awareness, discipline, and academic engagement. Grounded in Bandura's Social Cognitive Theory, this approach is effective because it increases self-efficacy and self-regulation, enabling students to develop internal standards for their academic behavior and take greater ownership of their learning processes. The review also reveals that successful implementation requires structured teacher guidance, peer collaboration, and supportive learning environments, while challenges such as technological distractions and limited parental involvement must be addressed. These findings provide educators and counselors with evidence-based insights for designing interventions that cultivate student responsibility, addressing the core research objective of exploring how self-monitoring can be effectively applied in educational practice to help students develop stronger learning responsibility.

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