

Implementation of a Moodle-Based Learning Management System (LMS) to Stimulate Self-Regulated Learning (SRL) in Guidance Institution Students Civil Service School Selection

Avandhi Surya Setia¹, Yudan Hermawan¹, A. Hasdiansyah²

¹Program Studi Pendidikan Nonformal, Universitas Negeri Yogyakarta

²Program Studi Magister Pedagogi, Sekolah Pascasarjana, Universitas Muhammadiyah Parepare

Corresponding Author: Avandhi Surya Setia

Email: avandhisurya.2025@student.uny.ac.id

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Abstract

This study examines the implementation of a Moodle-based Learning Management System (LMS) and its role in stimulating self-regulated learning (SRL) among students enrolled in a civil service school preparation program at Caping Indonesia, Karanganyar, Central Java. A qualitative descriptive design was employed to explore students' experiences, learning behaviors, and interactions with Moodle features in a non-formal education setting. Participants consisted of eight students who actively used the LMS and one tutor responsible for monitoring and supporting their learning. Data were collected through semi-structured interviews, direct observation, and documentation analysis of learning activities, login records, module completion, practice tests, and performance reports. The data were analyzed using Miles, Huberman, and Saldaña's interactive model comprising data condensation, data display, and conclusion drawing or verification. The findings show that Moodle functions not merely as a repository of learning materials but as an integrated learning environment that supports all three phases of Zimmerman's SRL model. In the forethought phase, structured modules, learning schedules, and targets help students plan and prioritize study activities. During performance control, flexible access, repeated practice, reminders, progress tracking, and tutor monitoring enable students to regulate their learning consistently. In the self-reflection phase, automated scores, detailed feedback, and performance histories allow students to identify weaknesses, review materials, and adjust learning strategies. The study concludes that Moodle can strengthen learner autonomy, metacognitive awareness, and independent learning practices in civil service school preparation. Its effectiveness, however, depends on intentional instructional design, personalized feedback, and the integration of learning analytics within non-formal education contexts.

Introduction

Education is one of the fundamental human needs and constitutes a basic right for every individual (Ahmad, 2021). Beyond knowledge transmission, education plays a strategic role in developing learners' cognitive, affective, and psychomotor abilities, thereby contributing to societal progress and national development (Andari, 2022). In recent years, the rapid

advancement of digital technology has significantly transformed educational practices, including the non-formal education sector (Ahmadi & Ibda, 2021). Tutoring institutions are increasingly required to shift from conventional face-to-face instruction toward more flexible and technology-supported learning environments (Fahman, 2024; Saragih & Silalahi, 2024; Aziz et al., 2024). This transformation involves not only technological adaptation but also pedagogical changes that promote active participation and learner independence (Rincon-Flores et al., 2024). One educational context that particularly requires independent learning capabilities is preparation for Indonesian civil service school admissions, including IPDN, STAN, Poltekim, and other official government academies (Lee et al., 2024; Liu et al., 2026). Admission to these institutions is highly competitive and requires candidates to master extensive learning materials for the Basic Competency Selection. Therefore, students are expected not only to acquire academic knowledge but also to develop effective learning management, discipline, and persistence throughout the preparation process (Bosch & Spinath, 2023; Lahiya et al., 2025). However, although digital learning environments provide greater flexibility, many learners still experience difficulties in managing and regulating their own learning activities independently (Viberg et al., 2020; Sutarni et al., 2021; Edisherashvili et al., 2022; Aziz et al., 2024; Khalil et al., 2024). These challenges indicate that technology adoption alone is insufficient without strengthening students' ability to engage in self-regulated learning.

Self-Regulated Learning (SRL) has therefore become an important concept for understanding successful independent learning. Zimmerman (2002) defines SRL as an active process in which learners plan, monitor, regulate, and evaluate their cognition, motivation, and behavior to achieve learning goals. The SRL framework consists of three interconnected phases: forethought, performance control, and self-reflection (Zimmerman & Moylan, 2009). Previous studies have consistently demonstrated that students with stronger SRL abilities tend to exhibit higher self-efficacy, greater persistence, and improved academic performance, particularly within technology-supported learning environments (Panadero, 2017; Ou et al., 2025; Maiti & Priyaadharshini, 2026). In the context of civil service school preparation, these competencies are particularly essential because students must independently organize learning schedules, manage extensive materials, and maintain consistent study motivation. Learning Management Systems (LMS), particularly Moodle, provide digital learning environments that have the potential to facilitate SRL development (Saadati et al., 2023; Alserhan et al., 2023; Çakiroğlu et al., 2024; Chtouki & Boutahar, 2025). Moodle offers various features, including self-paced learning modules, progress tracking, discussion forums, automated feedback, learning analytics, and self-assessment activities, which support learners in establishing goals, monitoring progress, evaluating performance, and adjusting learning strategies based on feedback (Watson et al., 2006; Kehrwald & Parker, 2019; Chisag & Tabuena, 2022; Guo, 2022). These functionalities are closely aligned with Zimmerman's SRL model, suggesting that Moodle can serve as a technological environment that supports metacognitive development and learner autonomy.

From a broader educational perspective, the integration of Moodle also reflects a shift from teacher-centered instruction toward learner-centered education. Freire (2020) criticized conventional education through the concept of the "banking model," in which learners are positioned as passive recipients of knowledge. Similarly, adult learning theory emphasizes that learners should develop autonomy and the ability to direct their own learning processes (Malik, 2008; Kharroubi & ElMediouni, 2024; Rui et al., 2024). Within this perspective, Moodle-based learning environments function not merely as digital repositories but as pedagogical spaces that encourage students to actively construct knowledge and develop self-directed learning

behaviors (Bozorgian & Shamsi, 2022; Pratiwi & Waluyo, 2023; Septiari & Bayu, 2025). Although previous studies have widely examined Moodle-based LMS implementation and SRL development in formal educational settings (Watson et al., 2006; Panadero, 2017; Kehrwald & Parker, 2019; Viberg et al., 2020), limited research has explored their application in non-formal education contexts, particularly within civil service school preparation institutions. Existing studies have primarily focused on academic achievement, online learning effectiveness, or technology acceptance, while fewer studies have investigated how specific Moodle features stimulate each phase of SRL among learners preparing for highly competitive admission processes. Therefore, this study aims to analyze the implementation of a Moodle-based Learning Management System (LMS) in a civil service school preparation institution and examine its role in stimulating students' Self-Regulated Learning (SRL) (Pratama et al., 2023; Ait Daoud et al., 2024; Andriyani et al., 2026). Specifically, this study explores how Moodle is implemented in the learning process, how its features support the forethought, performance control, and self-reflection phases of SRL, and how LMS implementation contributes to strengthening independent learning practices in non-formal education.

Method

Research Design

This study employed a qualitative descriptive research design to examine the implementation of a Moodle-based Learning Management System (LMS) in stimulating students' Self-Regulated Learning (SRL) within a civil service school preparation institution. The qualitative approach was selected because the objective of this research was not to measure the effectiveness of LMS implementation statistically, but rather to explore and understand students' learning experiences, perceptions, behaviors, and interactions with digital learning environments in a natural context. According to Creswell (2014), qualitative research is appropriate when researchers seek to understand the meaning individuals or groups attribute to a particular social or educational phenomenon. Therefore, this approach enables the researcher to investigate how students experience Moodle-based learning activities and how technological features contribute to their learning independence.

The descriptive qualitative method was considered suitable because the research focused on describing the actual implementation process of the Moodle LMS and identifying how its features support the three dimensions of Self-Regulated Learning proposed by Zimmerman (2002), namely forethought, performance control, and self-reflection. Through this approach, the study attempted to capture detailed descriptions of students' learning practices, their interaction with LMS features, and the role of digital learning environments in supporting autonomous learning processes. As explained by Ratnaningtyas et al. (2023), qualitative descriptive research emphasizes the systematic description of phenomena based on participants' experiences and observable behaviors.

This research was conducted at Caping Indonesia, a civil service school preparation institution located on Jl. RM Said, Tegalgede, Karanganyar, Central Java, Indonesia. The research activities were carried out on Saturday and Sunday, April 11–12, 2026. The research setting was selected because Caping Indonesia has implemented a Moodle-based LMS as an integrated learning medium to support students preparing for civil service school admission examinations. Therefore, this location provided a relevant context for examining the relationship between digital learning implementation and students' self-regulated learning development.

Research Subjects and Data Sources

The subjects of this study consisted of students and a tutor involved in the civil service school preparation program at Caping Indonesia. The participants included eight students who actively utilized the Moodle-based LMS for learning activities and one tutor who was responsible for supporting and monitoring student learning processes. The selection of participants was conducted using purposive sampling, where participants were selected based on their direct involvement and experience with the phenomenon being investigated. The students were selected because they represented the primary users of the Moodle LMS and were able to provide information regarding their experiences, learning strategies, and perceptions of how LMS features supported their independent learning activities. Meanwhile, the tutor was included as an additional source of information to provide an instructional perspective regarding LMS utilization, student monitoring, and the role of digital learning analytics in supporting learning management.

In qualitative research, the researcher functions as the main instrument who directly interacts with participants, collects information, interprets findings, and constructs meaning from the collected data (Creswell, 2014). Therefore, the researcher played an active role throughout the research process, including designing the research procedure, conducting interviews, observing learning activities, analyzing data, and ensuring that the interpretation accurately represented participants' experiences. The data sources in this study consisted of primary and secondary data. Primary data were obtained from interviews and observations involving students and tutors who interacted directly with the Moodle LMS. Secondary data were obtained from Moodle documentation, including learning activity records, tryout results, learning progress reports, and platform activity logs. The combination of these data sources enabled the researcher to obtain a comprehensive understanding of LMS implementation from both experiential and empirical perspectives.

Data Collection Techniques

Data collection in this study was conducted through interviews, observations, and documentation analysis. These three techniques were selected to obtain rich and comprehensive information regarding the implementation of Moodle LMS and its contribution to students' Self-Regulated Learning. Semi-structured interviews were conducted with students and tutors to explore their experiences, perceptions, and interpretations regarding Moodle utilization. The interview questions were developed based on the research objectives and focused on several aspects, including students' experiences accessing learning materials, their strategies for managing learning activities, the use of LMS features for monitoring progress, and the role of feedback mechanisms in improving learning outcomes. Semi-structured interviews provided flexibility for participants to explain their experiences in depth while allowing researchers to maintain consistency across participants.

Observation was conducted to examine the actual interaction between students and the Moodle learning environment. Through observation, the researcher identified students' learning behaviors, patterns of LMS usage, and engagement with various platform features, such as accessing learning modules, completing practice tests, reviewing learning outcomes, and utilizing feedback provided by the system. Documentation analysis was also conducted by examining relevant LMS-generated data. The documentation included student learning activity records, login frequency, duration of access, completion of learning modules, participation in online tryouts, and performance reports. These data were used to complement interview and

observation findings by providing empirical evidence regarding students' engagement and learning regulation patterns within the digital environment.

Research Instrument

In qualitative research, the researcher served as the primary research instrument responsible for collecting, interpreting, and analyzing data. However, supporting instruments were also developed to ensure systematic data collection. The research instruments consisted of interview guidelines, observation sheets, and documentation analysis guidelines. The interview guidelines were designed based on the theoretical framework of Self-Regulated Learning developed by Zimmerman (2002). The questions explored students' learning planning processes (forethought), strategies for monitoring and controlling learning activities (performance control), and evaluation of learning outcomes (self-reflection). Meanwhile, observation guidelines were developed to record students' interactions with Moodle features, including learning module access, practice test participation, and utilization of learning feedback. The documentation analysis guidelines were used to examine LMS-generated learning analytics data. These guidelines focused on identifying indicators related to student engagement, including learning activity frequency, completion of learning tasks, assessment participation, and progress monitoring. These instruments ensured that the collected data remained aligned with the research objectives.

Data Analysis Technique

The collected data were analyzed using the interactive data analysis model developed by Miles et al. (2014). This model consists of three interconnected stages: data condensation, data display, and conclusion drawing or verification. The first stage, data condensation, involved selecting, simplifying, categorizing, and organizing raw data obtained from interviews, observations, and documentation. During this stage, the researcher identified relevant information related to Moodle implementation and its relationship with Self-Regulated Learning dimensions. The second stage, data display, involved presenting the organized information in a structured form to facilitate interpretation. The researcher arranged interview findings, observation results, and LMS documentation into thematic categories based on Zimmerman's SRL framework, including forethought, performance control, and self-reflection. The final stage involved drawing conclusions and verifying findings. At this stage, the researcher interpreted patterns emerging from the data and established relationships between Moodle features and students' self-regulated learning behaviors. Conclusions were continuously verified by comparing different data sources to ensure consistency and accuracy.

Result and Discussion

This section presents the findings regarding the implementation of the Moodle-based Learning Management System (LMS) at Caping Indonesia and its contribution to stimulating students' Self-Regulated Learning (SRL). The analysis was conducted based on data obtained from interviews, observations, and documentation of LMS activities involving students and tutors. The findings are organized into two main aspects: the technical integration of the Moodle LMS within students' learning activities and the role of Moodle features in supporting the three phases of Self-Regulated Learning proposed by Zimmerman (2002), namely forethought, performance control, and self-reflection. The results demonstrate how the LMS functions not only as a digital learning platform but also as a structured learning environment that facilitates learner autonomy, continuous monitoring, and reflective learning practices in the context of civil service school preparation.

Technical Integration Flow of the Caping Indonesia LMS in Student Learning Activities

The implementation of the Moodle-based Learning Management System (LMS) at Caping Indonesia was designed to provide an integrated digital learning environment that supports both independent learning and tutor supervision. According to the LMS administrators, the development process began with curriculum analysis, followed by system design, digital content development, and internal platform testing before the system was deployed for students. This implementation process was intended to ensure that the platform not only functioned as a repository of learning materials but also as a structured environment capable of supporting students' independent learning throughout the civil service school preparation program. Furthermore, the administrators explained that the LMS was developed to enable students to access learning materials, practice questions, and tryout simulations anytime and anywhere while allowing tutors to monitor learning progress through integrated learning analytics. This demonstrates that the LMS was intentionally designed to facilitate independent learning while maintaining continuous academic supervision.

The technical implementation of the LMS is organized into four sequential operational modules: (1) login procedures, (2) access to digital learning modules, (3) online tryout activities, and (4) review of tryout results. This workflow was designed to simplify user interaction while guiding students through a structured learning process. The overall integration between Moodle's technological infrastructure and the learner interface is presented in Figure 1.

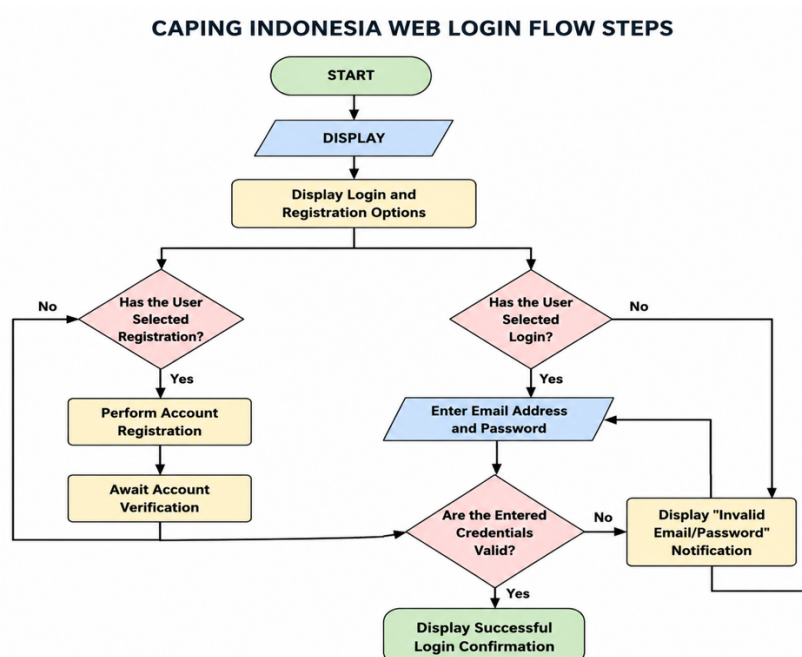


Figure 1. Steps to Log In to Web Caping Indonesia

The technical flow illustrated in the system demonstrates that the Caping Indonesia LMS is designed not merely as a digital storage medium for instructional materials but as a learning ecosystem that encourages active learner participation. Each stage requires students to perform specific actions, beginning with login verification, accessing learning modules, completing tryout activities, and reviewing learning outcomes. Such a structured sequence is expected to reduce unnecessary cognitive effort associated with navigating the platform, allowing students to focus more effectively on mastering the learning content. This design is consistent with the

principles of web-based educational technology, which emphasize that a clear and systematic interface can reduce extraneous cognitive load and facilitate meaningful learning. This implementation is illustrated further in Figures 2 and 3, which describe the procedures for accessing learning modules and participating in online tryout activities.

STEPS FOR READING THE MODULE ON CAPING INDONESIA WEB

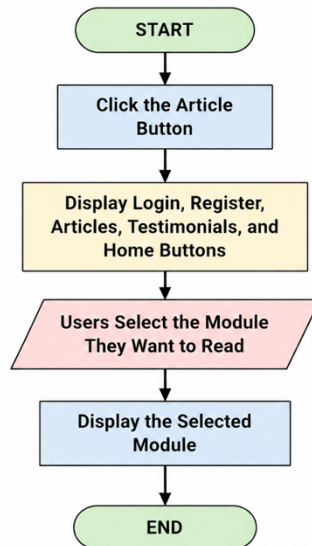


Figure 2. Steps for Reading the Module

STEPS FOR TAKING A TRYOUT ON THE CAPING INDONESIA WEBSITE

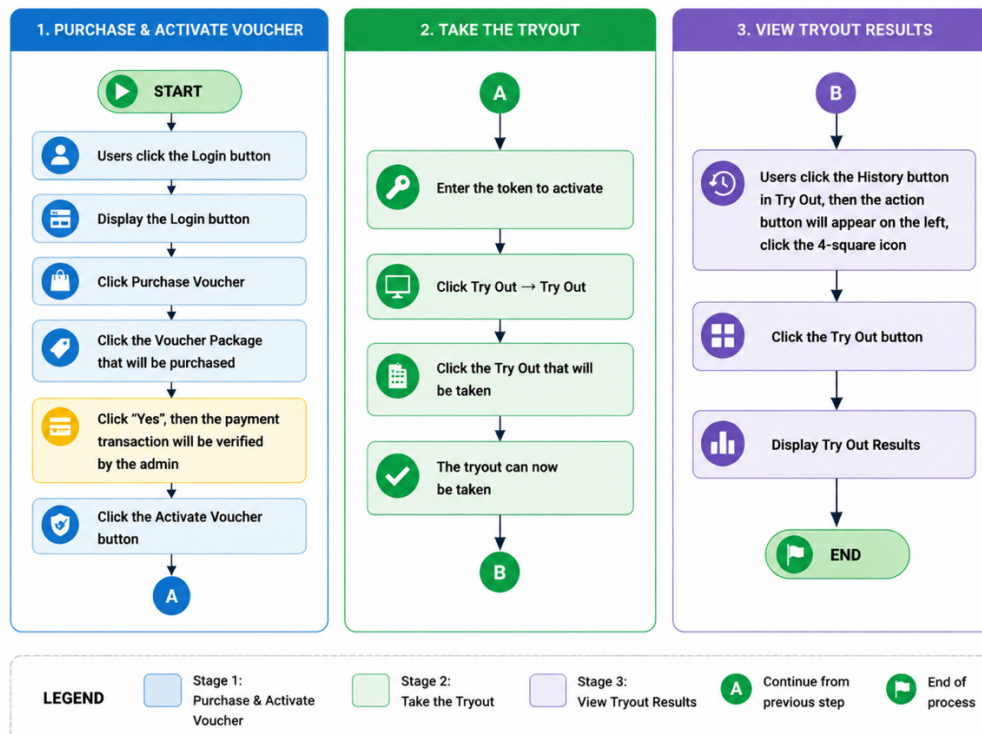


Figure 3. Steps for Taking a Practice Test and Viewing Your Practice Test History

The operational simplicity of the LMS is particularly important for students enrolled in non-formal tutoring institutions, the majority of whom are recent high school graduates preparing for highly competitive civil service school admissions (Fahman, 2024). By integrating learning modules, digital articles, practice exercises, tryout simulations, score reports, and learning history within a single platform, Moodle minimizes the psychological burden associated with navigating multiple learning resources while providing a more organized learning experience (Kehrwald & Parker, 2019). Consequently, students are able to allocate greater cognitive resources toward understanding instructional content and developing metacognitive awareness during their preparation process. The interview findings further support these observations. One participant explained that although the initial use of the LMS required a short period of adaptation, the platform quickly became easy to use because the menus were simple and systematically organized. The participant also reported that the structured organization of learning materials enabled easier access to resources needed for independent study. As the participant stated,

"After trying it several times, the LMS became easier to use because the interface and system flow were quite simple. The learning materials were also well organized, making it easier for me to find the content I needed."

This finding indicates that the usability of the platform contributes to students' readiness to engage in independent learning activities by reducing technical barriers during the early stages of LMS adoption. The learning environment provided through Moodle is presented in Figures 4 and 5. These interfaces demonstrate how students access digital learning modules, instructional articles, online tryout simulations, and detailed performance reports generated automatically by the system. Rather than functioning solely as a repository of learning resources, these features establish a digital learning environment that supports continuous learning, monitoring, and self-evaluation.

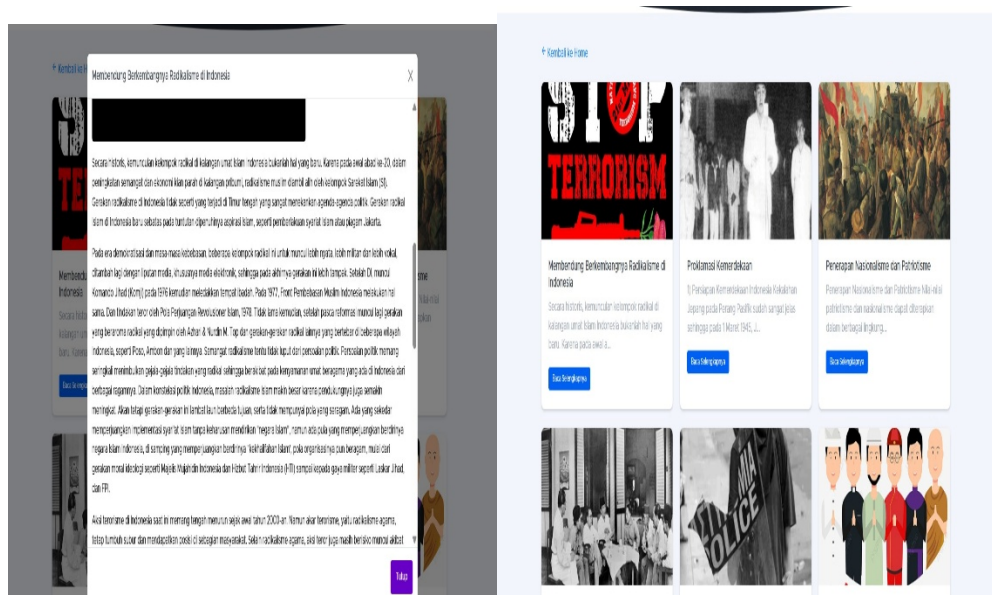


Figure 4. Learning Modules and Articles Page

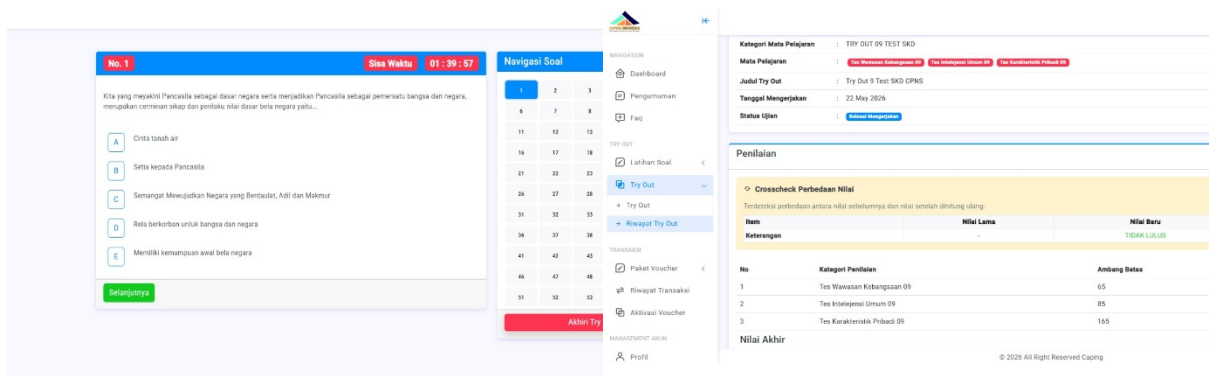


Figure 5. Tryout Page and Tryout Scores

Overall, the implementation of the Moodle-based LMS at Caping Indonesia demonstrates that the platform was intentionally designed to support structured independent learning through an integrated digital ecosystem. The combination of user-friendly navigation, organized instructional content, interactive assessments, and automated performance reports provides the technological foundation for fostering students' Self-Regulated Learning. The following section discusses in greater detail how these Moodle features stimulate the forethought, performance control, and self-reflection phases of Self-Regulated Learning among students preparing for civil service school selection.

Stimulating Self-Regulated Learning (SRL) Aspects through Moodle Features

The findings indicate that the implementation of the Moodle-based Learning Management System at Caping Indonesia contributes significantly to stimulating students' Self-Regulated Learning (SRL). Analysis of interview data with students and LMS administrators revealed that the platform supports learners throughout the three phases of Self-Regulated Learning proposed by Zimmerman (2002), namely the forethought phase, the performance control phase, and the self-reflection phase. Rather than functioning solely as a repository for learning materials, the LMS creates an autonomous learning environment that encourages students to regulate their own learning processes through structured learning resources, automated assessments, learning analytics, and continuous feedback.



Figure 6. Tutoring Center Students Log In to the Caping LMS and Begin Their Lessons

During the forethought phase, the LMS facilitates students in planning and organizing their learning activities before engaging with instructional materials. The structured organization of

learning modules, learning schedules, and digital resources enables students to establish learning priorities according to their individual needs. One participant explained that the LMS helped him organize weekly learning targets and independently determine which materials should be completed before taking the next practice examination. The participant stated,

"I usually use the LMS to organize my own learning targets. I can determine which materials should be completed each week and create my own schedule for practicing questions."

This finding is consistent with information provided by the LMS administrators, who explained that the learning materials were intentionally organized according to the curriculum sequence so that students could easily identify where to begin their learning process. In addition, scheduling features and learning targets were integrated into the platform to assist students in planning their study activities systematically. These findings support Zimmerman's (2002) argument that effective self-regulated learners actively establish learning goals before engaging in learning activities. They also align with the principles of andragogy, which emphasize learner autonomy and responsibility for directing one's own learning (Malik, 2008). The second phase identified in this study is the performance control phase, during which students regulate their learning behaviours while completing instructional activities. The Moodle platform enables students to access learning materials according to their own pace, complete practice exercises repeatedly, and participate in online tryout simulations designed to resemble the actual civil service school selection examination. Throughout this process, students continuously monitor their learning progress through automated scores, progress indicators, and tutor feedback.

One participant explained,

"I monitor my learning progress through the scores from practice questions, the completed learning materials, and the evaluations provided by the system and tutors. These progress features help me understand whether I am already on target or still need to improve."

The participant further reported that notifications, reminders, and reward mechanisms encouraged greater consistency in accessing the LMS and completing learning activities.

"Notifications, learning reminders, and achievement badges motivate me to access the LMS every day and complete my learning targets."

These findings are reinforced by the perspectives of the LMS administrators, who explained that the platform records login frequency, learning duration, completed learning modules, and tryout participation through an integrated learning analytics dashboard. These data enable tutors to monitor students' learning behaviours in real time and provide personalized academic interventions whenever learning difficulties are identified. The findings support previous studies indicating that learning analytics and digital monitoring tools play an important role in promoting students' self-monitoring and behavioural regulation within online learning environments (Viberg et al., 2020; Arcoverde et al., 2022). The self-reflection phase emerged as the final component of students' self-regulated learning. After completing practice examinations, students were able to review detailed score reports, identify incorrect answers, compare their performance with previous tryouts, and determine which learning materials required further study. One participant described this reflective process by stating,

"Whenever I finish a practice test, I immediately review my results to identify my strengths and weaknesses. If my score is still low, I reread the learning materials, watch the instructional videos again, and practice more questions until I understand the topic better."

Similarly, the LMS administrators explained that every assessment automatically generates performance reports that allow both students and tutors to evaluate learning progress and determine appropriate follow-up interventions. Students are encouraged to revisit learning modules, repeat practice exercises, or consult tutors based on the learning analytics generated by the system. Overall, these findings demonstrate that Moodle supports all three phases of Self-Regulated Learning by enabling students to plan learning activities, monitor their own progress, and evaluate learning outcomes using objective performance data. Consequently, the LMS functions not merely as a technological platform but as a pedagogical environment that stimulates students' metacognitive awareness and promotes autonomous learning throughout the civil service school preparation process (Zimmerman, 2002; Panadero, 2017).

Moodle LMS and Self-Regulated Learning in Non-Formal Education

The findings of this study demonstrate that the Moodle-based Learning Management System implemented at Caping Indonesia extends beyond its conventional role as a digital learning platform. Instead, it functions as an integrated pedagogical environment that facilitates the development of students' Self-Regulated Learning through structured learning experiences, continuous monitoring, and automated feedback. This finding supports previous studies reporting that Moodle enhances learner autonomy by providing flexible access to learning resources while encouraging students to regulate their own learning behaviours (Watson et al., 2006; Kehrwald & Parker, 2019; Viberg et al., 2020). Unlike many previous studies that primarily investigated Moodle implementation within higher education, the present study demonstrates its effectiveness in the context of non-formal education, particularly among students preparing for highly competitive civil service school admissions.

This educational context requires students to manage extensive learning materials independently while balancing personal schedules and maintaining consistent learning motivation. Consequently, the structured learning environment provided by Moodle becomes particularly valuable in supporting autonomous learning behaviours. The findings also provide empirical support for Zimmerman's Self-Regulated Learning model. Students were found to engage in goal setting through structured learning schedules, self-monitoring through progress tracking and learning analytics, and self-reflection through automated performance reports generated by the LMS. These findings indicate that the technological features embedded within Moodle facilitate the metacognitive processes required for effective self-regulated learning rather than merely delivering instructional content (Zimmerman & Moylan, 2009; Zimmerman, 2002). From the perspective of adult learning theory, the implementation of Moodle also reflects the principles of andragogy.

Learners are provided with opportunities to determine their own learning pace, select appropriate learning resources, and evaluate their own progress independently. Such conditions encourage greater learner autonomy and responsibility for learning outcomes, which constitute fundamental characteristics of adult education. Furthermore, these findings resonate with Freire's concept of liberating education. Traditional tutoring often positions students as passive recipients of information, whereas the Moodle-based learning environment encourages students to actively construct knowledge through continuous interaction with learning materials, practice exercises, and reflective evaluation. In this sense, technology serves not as

a mechanism for delivering information but as a medium that empowers learners to become active participants in their own learning processes (Freire, 2020). The practical implications of these findings suggest that Learning Management Systems should not merely function as repositories for instructional materials. Instead, LMS platforms should integrate learning analytics, personalized feedback, structured learning pathways, and reflective learning activities that actively stimulate students' Self-Regulated Learning. Such an approach is particularly relevant for non-formal educational institutions responsible for preparing learners to succeed in highly competitive academic and professional selection processes.

Implications of Research Findings for Civil Service School Preparation Practices

The findings of this study have important implications for the implementation of digital learning within non-formal education, particularly in civil service school preparation institutions. The Moodle-based Learning Management System implemented at Caping Indonesia demonstrates that digital platforms can extend learning beyond scheduled face-to-face sessions by providing students with continuous access to learning materials, practice tests, and automated feedback. Consequently, students are encouraged to engage in independent learning activities according to their individual needs and learning pace while remaining connected with tutors through the integrated learning environment (Fahman, 2024). The interview findings indicate that the LMS not only supports students' independent learning but also assists tutors and administrators in monitoring learning progress through learning analytics.

According to the LMS administrators, features such as login records, practice test completion, learning progress dashboards, and performance reports enable tutors to identify students experiencing learning difficulties and provide more personalized academic guidance (Wiedbusch et al., 2021; Aziz et al., 2024; Saragih & Silalahi, 2024; Ayeoribe & Ayeoribe, 2025). Rather than relying solely on periodic classroom observations, tutors can utilize learning analytics to monitor students' participation, identify weaknesses in specific subject areas, and recommend appropriate learning resources based on individual performance. From the students' perspective, the availability of structured learning modules, automated assessment results, and detailed performance reports supports continuous self-evaluation and adaptive learning strategies (Yunus, 2025; Yang & Sun, 2026). One participant explained that after completing each practice examination, the first action taken was reviewing the results to identify weaknesses before revisiting learning materials and repeating practice exercises. This finding suggests that immediate feedback generated by the LMS encourages students to become more reflective and proactive in improving their learning performance rather than depending entirely on tutor explanations.

These findings suggest that tutoring institutions should no longer regard Learning Management Systems merely as repositories for instructional materials or digital document storage. Instead, LMS platforms should be developed as integrated learning ecosystems that combine structured instructional content, interactive learning activities, learning analytics, automated feedback, and communication facilities capable of supporting students' Self-Regulated Learning. Such an approach allows tutors to shift their instructional role from primarily delivering content toward facilitating learning, providing individualized guidance, and supporting students' metacognitive development. The findings also highlight several opportunities for future LMS development. Both LMS administrators emphasized the importance of integrating more adaptive learning technologies capable of automatically identifying students' learning weaknesses and recommending appropriate instructional materials based on individual

performance. In addition, both administrators suggested incorporating reflective learning journals and more personalized learning analytics to further strengthen students' self-regulation and independent learning skills. Overall, the present study demonstrates that the successful implementation of Moodle within non-formal education depends not only on technological infrastructure but also on instructional design that intentionally supports planning, monitoring, and self-reflection throughout the learning process. Therefore, the integration of Moodle with Self-Regulated Learning principles offers a promising approach for improving the effectiveness of civil service school preparation programs while promoting sustainable independent learning among students (Watson et al., 2006; Kehrwald & Parker, 2019).

Conclusion

This study concludes that the implementation of a Moodle-based Learning Management System (LMS) at Caping Indonesia plays an important role in stimulating students' Self-Regulated Learning (SRL) within a non-formal civil service school preparation program. Moodle functions not only as a platform for delivering learning materials but also as an integrated digital learning environment that supports students in planning learning objectives, monitoring progress, and evaluating learning outcomes. The features provided, including structured learning modules, online practice tests, learning analytics, progress tracking, and automated feedback, facilitate the three phases of Self-Regulated Learning proposed by Zimmerman: forethought, performance control, and self-reflection. Through these features, students are encouraged to develop greater learning autonomy, metacognitive awareness, and responsibility for their own learning processes. The findings highlight that the effectiveness of LMS implementation depends not merely on technological availability but also on appropriate instructional design that intentionally supports independent learning behaviors. Therefore, non-formal education institutions can utilize Moodle-based LMS as a strategic learning ecosystem to enhance learner independence and improve preparation quality for competitive civil service school selection. Future studies are recommended to involve broader participants and apply mixed-method or quantitative approaches to further examine the relationship between LMS utilization and students' learning outcomes.

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