SELF-REGULATED LEARNING PROFILES OF STUDENTS IN ONLINE LEARNING

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Abstract: This study investigates the self-regulated learning (SRL) profiles of Primary School Teacher Education students at Universitas Kuningan during online learning in the 2023 academic year. Using a mixed-method approach, 30 participants were assessed on metacognitive, motivational, and behavioral SRL dimensions through Likert-scale questionnaires and structured interviews. Findings reveal strong metacognitive skills, particularly in goal setting, progress monitoring, and planning. Motivationally, students exhibited sustained task interest but showed lower self-efficacy, indicating a need for confidence-building interventions. Behavioral strengths included effective time management and resource optimization, though enhanced digital literacy is recommended for improved resource utilization. Qualitative insights highlighted students' appreciation for the flexibility of online learning but noted challenges such as reduced social interaction and limited access to physical resources. These findings emphasize the need for tailored strategies to address self-efficacy gaps and suggest hybrid learning models as an effective approach to balance flexibility and structure in education. The study contributes to the broader discourse on SRL by providing insights specific to a non-Western educational context, paving the way for future research and practical interventions.

Keywords: *self-regulated learning; online learning; metacognition; motivation; behavioral strategies; hybrid learning; higher education*

INTRODUCTION

The rapid integration of online learning environments, especially post-COVID-19, has drastically altered the dynamics of higher education. While the flexibility of online learning offers immense potential, its success largely depends on students' ability to self-regulate their learning processes (Alghamdi et al., 2020; Zhu et al., 2020). Self-regulated learning (SRL) equips students to plan, monitor, and evaluate their learning autonomously, critical in online modalities where external supervision is limited (Carter Jr et al., 2020; Anthonysamy et al., 2020). This paradigm shift underscores the need for understanding how SRL impacts academic outcomes and engagement in online learning contexts, particularly for university students navigating hybrid or fully online environments (Holzer et al., 2021; Jansen et al., 2020).

Existing studies emphasize the multifaceted nature of SRL, which involves cognitive, metacognitive, and motivational dimensions. For example, Zimmerman's (2023) conceptual framework identifies goal-setting, self-monitoring, and strategic learning as key elements of SRL. Recent research corroborates the efficacy of SRL strategies in enhancing academic performance and motivation across various educational settings, including online and blended learning environments (Anthonysamy et al., 2020; Bai & Wang, 2023). Tools such as open learner models and process mining have been introduced to measure SRL behaviors, reflecting advancements in learning analytics and feedback systems (Hooshyar et al., 2020; Cerezo et al., 2020). Despite these developments, there is limited exploration of SRL specific to the challenges posed by asynchronous learning modes, where students face increased risks of procrastination and disengagement (Hong et al., 2021; Pelikan et al., 2021).

Motivation plays a critical role in the successful application of SRL strategies. Research indicates that self-efficacy and intrinsic motivation significantly influence students' ability to regulate their learning (Kim et al., 2022; Malau et al., 2022). Additionally, interventions such as formative assessments and feedback mechanisms have been shown to bolster students' motivation and SRL capabilities (Granberg et al., 2021; Farhana et al., 2021). However, the intersection of motivational constructs with digital literacy and technology-mediated learning remains underexplored (Dignath & Veenman, 2021; Cobos, 2023).

The transition to online learning has introduced unique challenges, such as increased cognitive

load, technological barriers, and reduced social interaction (Viberg et al., 2020; Holzer et al., 2021). Studies highlight that students often struggle with time management, self-monitoring, and sustaining motivation in digital learning environments (Wolters & Brady, 2021; Tong et al., 2020). While flipped learning and Massive Open Online Courses (MOOCs) have demonstrated potential in supporting SRL, their scalability and impact on diverse student populations remain contested (Jansen et al., 2020; Zhu et al., 2020).

Feedback is integral to SRL, facilitating self-monitoring and adaptive learning strategies (Farhana et al., 2021; Cerezo et al., 2020). Process-oriented feedback, in particular, encourages students to reflect on their learning processes rather than outcomes, fostering deeper engagement (Granberg et al., 2021; Sadikin & Hardianti, 2021). However, the effectiveness of feedback in online settings is contingent on its timeliness, relevance, and alignment with students' learning goals (Cobos, 2023; Perry et al., 2023).

Advances in educational technology, such as learning analytics and adaptive systems, have enhanced the measurement and facilitation of SRL (Hooshyar et al., 2020; Araka et al., 2020). These tools provide personalized feedback, identify learning patterns, and support strategic interventions. Despite their promise, their implementation in real-world educational settings often faces resistance due to privacy concerns, technological literacy gaps, and infrastructural constraints (Jivet et al., 2020; Meyer, 2023).

The COVID-19 pandemic accelerated the adoption of online learning, amplifying the relevance of SRL in ensuring academic continuity (Holzer et al., 2021; Pelikan et al., 2021). Research during the pandemic highlights how SRL practices mitigated the adverse effects of isolation and limited resources, enabling students to maintain academic performance (Hong et al., 2021; Holzer et al., 2021). However, the long-term sustainability of these practices post-pandemic remains uncertain, particularly in hybrid learning environments (Wulandari et al., 2020; Sangsawang, 2020).

While existing literature underscores the significance of SRL, gaps remain in understanding its application in diverse cultural and educational contexts. Most studies focus on Western settings, with limited exploration of SRL in developing countries or non-traditional learning environments (Kristiyani, 2020; Siregar & Siregar, 2021). Moreover, research has primarily examined SRL at the individual level, neglecting the influence of institutional and contextual factors (Kim et al., 2022; Newman, 2023).

This study seeks to address these gaps by investigating the profile of self-regulated learning among students in Indonesia, specifically at Universitas Kuningan. By leveraging qualitative and quantitative approaches, the research examines how metacognitive, motivational, and behavioral dimensions of SRL manifest in an online learning context. The study further explores how these dimensions interact with local cultural and institutional factors, providing a nuanced understanding of SRL in a non-Western setting.

This research aims to: (1) Examine the metacognitive, motivational, and behavioral aspects of SRL among university students; (2) Identify the challenges and opportunities associated with online learning in fostering SR; (3) Provide evidence-based recommendations for enhancing SRL through tailored interventions. By addressing these objectives, the study contributes to the broader discourse on SRL, offering insights into its applicability in diverse educational settings and paving the way for future research and practice.

METHOD
This study investigates the profile of self-regulated learning (SRL) among students at Universitas Kuningan during online learning in the 2023 academic year. SRL, as defined by Zimmerman (2023), refers to learners' systematic management of cognitive, motivational, and behavioral processes to achieve specific goals. Key SRL indicators include metacognitive dimensions such as planning and goal-setting, motivational aspects like self-efficacy and task interest, and behavioral factors including time management and resource utilization (Anthonysamy et al., 2020; Bai & Wang, 2023).

The research employed a descriptive qualitative design, integrated with quantitative analysis to identify patterns in SRL practices. Quantitative data were collected via questionnaires and analyzed through percentages to summarize trends, while qualitative data from structured interviews provided deeper insights into students' SRL behaviors (Carter Jr et al., 2020; Jansen et al., 2020).

The study targeted 30 purposively selected students from the Elementary School Teacher Education program at Universitas Kuningan. The sample size aligns with literature emphasizing the value of targeted samples in qualitative SRL research (Dignath & Veenman, 2021). Data

collection employed two instruments: Likert-scale questionnaires, designed to assess SRL dimensions across metacognitive, motivational, and behavioral aspects, and structured interview guidelines, informed by SRL indicators from existing literature (Hooshyar et al., 2020; Cerezo et al., 2020).

The Likert-scale questionnaires allowed for nuanced responses, facilitating the capture of variations in SRL strategies, as supported by prior research (Hong et al., 2021; El-Adl & Alkharusi, 2020). Structured interviews with closed-ended questions further enriched the data by triangulating questionnaire findings, a method well-regarded for enhancing the reliability of qualitative analyses (Granberg et al., 2021; Meyer, 2023).

A structured methodology was utilized to examine the dataset. Numerical data were analyzed by aggregating Likert-scale responses and computing percentages for each SRL category. These computations offered a comprehensive view of the average scores across the SRL dimensions (Alghamdi et al., 2020; Zhu et al., 2020). Qualitative information obtained through interviews was analyzed thematically to identify consistent trends and behaviors, with categorized responses numerically represented to emphasize prominent SRL themes (Carter Jr et al., 2020).

To guarantee validity, the tools underwent expert review in the field of educational research, ensuring alignment with SRL constructs (Granberg et al., 2021). Reliability was established via a preliminary study that assessed the steadiness and dependability of both the survey instruments and interview guidelines (Dignath & Veenman, 2021). Ethical principles were strictly adhered to by acquiring informed consent, safeguarding anonymity, and ensuring participants' confidentiality throughout the process (Malau et al., 2022).

This integration of qualitative and quantitative methods provides a robust framework for analyzing SRL in virtual education settings. The study's insights aim to guide future research and strategies to improve SRL among university students (Anthonysamy et al., 2020; Holzer et al., 2021).

RESULTS AND DISCUSSION
The outcomes of this research present an in-depth overview of self-regulated learning (SRL) among Universitas Kuningan students during remote learning, covering metacognitive, motivational, and behavioral dimensions. The quantitative findings indicate that students excelled in most

criteria, with minor variations across the categories, while qualitative data provide richer perspectives on their experiences and hurdles in learning.

The subsequent table illustrates the Self-Regulated Learning (SRL) scores of 30 participants from Universitas Kuningan. The participants are classified by their academic standings, and their total scores were determined using a Likert-scale survey developed to assess SRL components like planning, goal-setting, time management, and resource utilization. Each participant's score reflects their competency in managing their learning activities in an online setting. The scores span from a minimum of 25 to a maximum of 125, with higher values signifying greater SRL skills. This table forms the basis for examining disparities in SRL across academic levels and pinpointing areas requiring focused assistance and enhancement.

Table 1. *Self-Regulated Learning (SRL) scores*

No.	Respondent	Level	Total Score
1	X1	IV A	100
2	X2	IV A	88
3	X3	IVB	90
4	X4	IVB	94
5	X5	IVC	100
6	X6	IVC	101
7	X7	IVD	82
8	X8	IVD	88
9	X9	IIIA	99
10	X10	IIIA	96
11	X11	IIIB	93
12	X12	IIIB	94
13	X13	IIIC	101
14	X14	IIIC	91
15	X15	IIID	97
16	X16	IIA	91
17	X17	IIA	108
18	X18	IIB	88
19	X19	IIB	93
20	X20	IIC	101
21	X21	IIC	100
22	X22	IID	89
23	X23	IID	84
24	X24	IA	83
25	X25	IA	110
26	X26	IB	92

27	X27	IB	110
28	X28	IC	83
29	X29	IC	86
30	X30	ID	103

The table provides a comprehensive overview of the Self-Regulated Learning (SRL) scores among 30 respondents from Universitas Kuningan during online learning. Each respondent is uniquely identified by a code (e.g., X1, X2), categorized based on their academic levels, such as IV A, III C, and II A. The total scores reflect the respondents' abilities in SRL, encompassing key skills like planning, goal-setting, and time management.

The data reveal significant variability in performance. The highest score of 110 was achieved by respondents X25 (Level IA) and X27 (Level IB), indicating a high level of self-regulation during the online learning process. In contrast, the lowest score of 82 was recorded for respondent X7 (Level IVD), suggesting challenges in SRL practices in this group. Students in levels such as IV C (e.g., respondents X5 and X6) consistently performed well, with scores of 100 and 101, demonstrating effective adaptation to online learning. Similarly, respondent X30 from Level ID also excelled with a score of 103, showcasing strong self-regulation abilities.

However, certain levels, including IV D and IC, displayed lower scores, with multiple respondents scoring below 90. This highlights the need for targeted support in these groups to enhance SRL skills, particularly in areas like time management and self-monitoring. The scores were calculated from a Likert-scale questionnaire with a maximum possible score of 125 (derived from 5 points × 25 items) and a minimum score of 25 (1 point × 25 items).

Overall, while most respondents scored above 85, indicating a generally high level of SRL, there is room for improvement for certain individuals and groups. These findings suggest a need for tailored interventions, such as workshops or mentoring programs, to support students in effectively navigating the demands of online learning.

In terms of metacognition, students displayed strong capabilities in planning their learning, with an average score of 357 out of 450 (79%), categorized as "good." This indicates their ability to organize tasks, schedule study time, and set priorities. The indicator for setting learning goals scored highest at 247 out of 300 (82%), classified as "very good," demonstrating that students were effective in defining clear and structured objectives. Monitoring self in learning also received high ratings, with an average score of 359 out of 450 (80%), suggesting that students could track their progress and make necessary adjustments during the learning process. Evaluating self, however, was slightly less prominent, scoring 113 out of 150 (75%), although still categorized as "good." This indicates room for improvement in students' ability to reflect on their performance and outcomes systematically.

The following table provides an analysis of Self-Regulated Learning (SRL) indicators, highlighting the average scores, maximum scores, percentages, and corresponding categories for each indicator. These indicators represent various dimensions of SRL, including metacognitive, motivational, and behavioral aspects. The percentages are calculated based on the ratio of the average score to the maximum score for each indicator, with higher percentages reflecting stronger performance. The categories range from "Good" to "Very Good," illustrating the overall competence of the students in managing their learning processes during online education. This detailed breakdown allows for a nuanced understanding of students' strengths and areas needing further support within the SRL framework.

Table 2. *SRL indicators analysis*

Indicator	Average Score	Maximum Score	Percentage (%)	Category
Planning Learning	357	450	79	Good
Setting Learning Goals	247	300	82	Very Good
Monitoring Self in Learning	359	450	80	Very Good
Evaluating Self	113	150	75	Good
Interest in Tasks and Learning	460	600	77	Good
Self-Efficacy	203	300	68	Good
Choosing and Optimizing Learning Environment	226	300	75	Good
Creating an Optimal Learning Environment	331	450	74	Good

Time Management and Task Completion	234	300	78	Good
Seeking Learning Resources	331	450	74	Good

Table 2 provides insights into the Self-Regulated Learning (SRL) profiles of Universitas Kuningan students during online learning, examining performance across multiple indicators. Each indicator reflects a critical dimension of SRL, including metacognitive, motivational, and behavioral aspects.

Metacognitive indicators
The data reveal strong performance in metacognitive aspects. Planning Learning scored 79%, categorized as "Good," suggesting students effectively organize their learning schedules and prioritize tasks. Setting Learning Goals exhibited the highest percentage (82%), categorized as "Very Good," indicating students excel in defining clear, purposeful objectives for their studies. Similarly, Monitoring Self in Learning scored 80%, also "Very Good," demonstrating students' ability to track and adjust their learning processes effectively. Evaluating Self, with a score of 75% ("Good"), shows that while students are capable of reflecting on their learning outcomes, there is potential for further development in this area.

Motivational indicators
The motivational aspect, Interest in Tasks and Learning, scored 77%, categorized as "Good." This highlights that students maintain engagement and interest in their tasks, though there is room to enhance this area for sustained academic motivation. Self-Efficacy, the lowest scoring indicator at 68%, also categorized as "Good," suggests that students exhibit moderate confidence in their academic abilities. This points to a need for targeted interventions, such as confidence-building activities, to strengthen students' belief in their capacity to succeed.

Behavioral indicators
Behavioral aspects show consistent performance across the indicators. Choosing and Optimizing Learning Environment and Creating an Optimal Learning Environment scored 75% and 74%, respectively, both categorized as "Good." These scores reflect students' awareness of the importance of a conducive learning environment and their efforts to optimize it. Time Management and Task Completion scored 78% ("Good"), indicating that students generally manage their time effectively and meet deadlines. Seeking Learning Resources, scoring 74% ("Good"), reflects students' reliance on available learning materials, particularly online resources, but also highlights the potential to encourage diversified and critical resource selection.

SRL indicators shows that students perform well in most aspects of SRL, particularly in Setting Learning Goals and Monitoring Self in Learning, which are categorized as "Very Good." However, Self-Efficacy, while still in the "Good" category, emerges as the lowest-performing indicator, signaling an area for improvement. Strengthening self-efficacy and encouraging reflective practices can significantly enhance the students' overall SRL capabilities.

These findings provide a comprehensive understanding of the strengths and areas for improvement in students' self-regulated learning during online education, offering a basis for designing targeted interventions and support programs.

Table 3. *Self-regulated learning indicators performance*
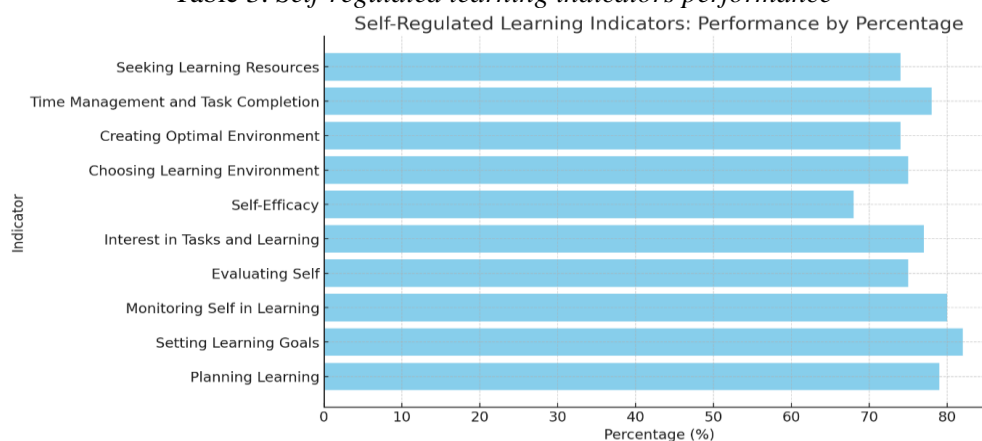
The findings of the present study align with previous research emphasizing the importance of self-regulated learning (SRL) in online learning environments. Similar to Zimmerman's framework on SRL, this study highlights key dimensions such as planning, monitoring, and evaluating learning, which are essential for academic success. Prior studies, such as those by Carter Jr. et al. (2020) and Holzer et al. (2021), have underscored the necessity of these skills in online education, particularly in enabling students to navigate the challenges of self-directed learning.

The relatively high performance in metacognitive indicators, such as goal setting and self-monitoring, corroborates findings by Jansen et al. (2020), which revealed that clear goal-setting enhances student engagement and productivity in digital learning contexts. Similarly, the behavioral competencies observed in time management and resource utilization echo the conclusions of Viberg et al. (2020), who noted the role of these strategies in maintaining academic performance amidst the flexibility of online education.

However, the lower performance in self-efficacy aligns with studies by Kim et al. (2022), which identified confidence as a critical barrier for students in adopting SRL strategies effectively. The present study supports these findings, suggesting that students' belief in their ability to succeed can significantly influence their motivation and learning outcomes.

Furthermore, the qualitative insights from this research resonate with studies like those by Pelikan et al. (2021), which highlighted the dual nature of online learning—its flexibility as an advantage and its reduced interactivity as a challenge. The preference for hybrid learning models observed in this study aligns with recommendations from Zhu et al. (2020), who advocated for integrating online and offline approaches to maximize the benefits of both modalities.

In summary, this study builds on the existing body of knowledge by reinforcing the significance of metacognitive, motivational, and behavioral dimensions of SRL in online learning. It extends the discourse by providing localized insights into how these dynamics manifest in an Indonesian higher education context, thus contributing to a more comprehensive understanding of SRL across diverse educational settings.

CONCLUSION

The findings of this study reveal that Universitas Kuningan students exhibit strong self-regulated learning (SRL) capabilities during online learning, particularly in setting clear goals, monitoring progress, and effectively planning their studies. These metacognitive strengths reflect their systematic approach to learning. However, their ability to evaluate performance, while solid, shows room for growth in reflective practices.

In terms of motivation, students maintained interest in learning activities, but self-efficacy emerged as a weaker area, indicating the need for initiatives to boost confidence and resilience. Behaviorally, students managed time efficiently, optimized their learning environments, and utilized digital resources, though improved digital literacy could enhance their resource use.

Qualitative insights highlighted the flexibility and cost-effectiveness of online learning, but also noted challenges such as reduced social interaction and limited access to physical resources. Many students preferred offline learning for its structure and collaborative opportunities. Overall, while students demonstrate strong SRL, improving self-efficacy and integrating hybrid learning models could further support their academic success.

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