

Self-Regulated Learning Model to Improve EFL Learners' Reading Skills Viewed from Intelligence

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Abstract

Self-regulated learning is assumed as a solution for language learners as agents who can establish and make progress on their learning objectives. In learning processes, learners are demanded to regulate their own learning process using their thoughts, feelings, and actions in relation to their attainment of personal goals. It can happen because learners are considered they have the potential to control, regulate, and monitor their own learning. In addition, students' intelligence is needed to help them control and monitor their learning strategies. Classroom activities that can expedite the emergence of self-regulated learning are appropriate learning materials. Proper learning materials become crucial things to improve students' reading skills using self-regulated learning. For these reasons, developing self-regulated learning materials is significant to improving students' reading skills viewed from intelligence. This study is aimed at developing self-regulated learning materials to improve students' reading skills viewed from intelligence at Islamic-affiliated senior high schools. To attain the research goal, this study employed R&D design that has four phases, namely defining, designing, developing, and disseminating. In collecting the data, researchers used three instruments, namely observation sheets, interview guidelines, and questionnaires. The results showed that EFL learners are more as autonomous learners in improving their reading skills. This model was implemented in the Islamic-affiliated senior high schools to improve students' reading skills viewed from intelligence. The intelligence level is as an attribute variable which is promising to give an effect on students' reading skills. In addition, the materials are designed in line with the core competencies and standard competencies in the Islamic-affiliated senior high school curriculum. The conclusion of this study shows that the S-RLM model is able to improve students' reading skills and the level of students' intelligence has a strong effect on students' reading comprehension.

Keywords: self-regulated learning, reading skills, intelligence.

Саморегулируемая модель обучения для улучшения навыков чтения учащихся EFL и их интеллект

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Аннотация

Саморегулируемое обучение рассматривается в качестве решения проблем, возникающих в ходе изучения английского языка в неанглоязычной среде. Предполагается, что учащиеся могут сами устанавливать цели обучения и добиваться прогресса в их достижении, регулировать учебный процесс, используя свои мысли, чувства и действия в соответствии с поставленными целями. Это может быть реализовано, поскольку считается, что учащиеся обладают потенциалом контролировать, упорядочивать и мониторить свое обучение, контролировать и корректировать стратегии обучения. Занятия в классе могут ускорить переход к саморегулируемому обучению. Надлежащие учебные материалы имеют решающее значение для развития интеллекта и улучшения навыков чтения, в связи с этим разработка саморегулируемых учебных материалов становится чрезвычайно важной. Исследование направлено на разработку саморегулируемых учебных материалов для улучшения навыков чтения учащихся старших классов исламских средних школ и их интеллекта. Для достижения цели исследования использовался метод R&D, состоящий из четырех этапов: определения, проектирования, доработки и распространения. При сборе данных использовались три инструмента, а именно: листы наблюдений, рекомендации по проведению интервью и анкеты. Результаты показали, что учащиеся EFL стали более самостоятельны в совершенствовании своих навыков чтения. Эта модель была внедрена в старших классах исламских школ для улучшения навыков чтения учащихся и их интеллекта. Уровень интеллекта – это атрибутивная переменная, которая, как ожидается, окажет влияние на навыки чтения учащихся. Материалы разработаны в соответствии с основными и стандартными компетенциями, предусмотренными в учебной программе исламских старших классов средней школы. Результаты этого исследования показывают, что модель S-RLM способна улучшить навыки чтения учащихся, а уровень интеллекта учащихся оказывает сильное влияние на понимание прочитанного.

Ключевые слова: саморегулируемое обучение, навыки чтения, интеллект.

Introduction

Reading is a crucial language skill that involves two interdependent processes. As noted by Rawian, Mokhtar, and Yahaya (2018), readers must simultaneously recognize the vocabulary within a text and construct its meaning. The ability to do both – word recognition and meaning-making – is essential for students to succeed in reading. To achieve this, EFL students need linguistic competence relating implicit knowledge of the structure and rules of their native language and also cognitive skills in doing meaning-making process. However, various challenges can hinder students' reading comprehension. These challenges include limited vocabulary acquisition (Lervåg & Aukrust, 2010), complex text structures (Harris et al., 2018), inadequate reading strategies, low confidence in completing texts (Sharma et al., 2017), and poor reading fluency (Geva & Farnia, 2012).

These difficulties collectively affect students' overall reading comprehension, which is the ultimate goal of reading activities.

In the teaching and learning, research has consistently highlighted the importance of vocabulary acquisition in explaining differences in learners' reading abilities (Crosson & Lesaux, 2010; Lee & Chen, 2018). The present study combines reading skills and vocabulary because it acknowledges their joint influence on comprehension. In this context, the research employs self-regulated learning (SRL) to help learner in what they can do to learn vocabulary and read the material in classroom.

A number of researchers have found that in EFL learning those students who enjoy autonomy or self-regulation do better than those who do not (Greene et al., 2009; Mohammadi et al., 2020; Soto et al., 2019; Zheng & Chen, 2016). This highlights the potency of SRL, in particular when teachers design appropriate teaching materials that promote self-regulated reading behaviors. The quality of learning material, along with the level of professionalism in teachers is one dimension that offers larger return for enhancing successful teaching outcomes (Desimone & Garet, 2015). For SRL to be successful, the contents need to induce EFL students to engage in self-regulated learning activities. As Roderick (2019) explains, SRL activities must encourage students to engage in decision-making processes, adapting and developing new skills in unfamiliar or challenging situations. In this context, SRL becomes a critical tool for improving students' reading skills.

Intelligence as an internal factor in students affects reading comprehension noticeably. Intelligence as a cognitive ability is central to the teaching and learning endeavour (Hanafin, 2004). Nagalingam et al. (2019), intelligence is described as "the capability to distinguish, attend, comprehend, and regulate learning efficiently." More intelligent students can work more effectively with peers, showing more motivation and self-esteem; acquire deeper understanding and attain higher academic performance (Mulyono et al., 2019). Enhanced intelligence allows the student to develop increased subject-matter motivation, skills, and determination to control individual learning for improved reading. Therefore, the purpose of this study is to establish a model for self-regulated learning materials (S-RLM) in order to improve students' reading ability taking into account on intelligence role toward reading scuss, especially in the context of Islamic Affiliated High School. Islamic-schools are selected as a research target since they provide a unique educational setting in which religious knowledge and general knowledge are formally combined. The dual system of education is not simply a juxtaposition of the two subjects, but an organic model which seeks to complement intellectual, moral and spiritual growth in students.

Literature Review

The S-RLM model is estimated to be useful for students of Islamic high school. To justify the quality of S-RLM, this work is consolidated using some crucial literature. The literature is comprised of the self-regulated learning strategy, reading skills in Islamic-oriented high schools, and intelligence. The summary of the basic literature is described as follows.

Self-Regulated Learning Strategy

Self-regulated learning in reading refers to the ability to reflect on EFL students' reading to understand, monitor, control, and regulate the process of reading. In doing so, this study employs the self-regulated learning strategy. The strategy of self-regulated learning proposes that language learners are able to control their learning progress by employing various cognitive, metacognitive, and motivational strategies. In controlling

EFL students' cognitive process, the teachers employ such strategies as planning, monitoring, and regulating. In other words, the point of touch of the self-regulated learning strategy is the monitoring and controlling process (Fernandez & Jamet, 2016). In this study, the self-regulated learning strategy adapts Winne and Hadwin's model (Winne & Hadwin, 2008) which has four recursive learning stages; "defining learning tasks; fixing learning goals and plans; enacting learning tactics and strategies; and adapting learning activities" (Winne & Hadwin, 2013). In conducting these learning activities, students can utilize their self-control and self-observation of how well they accomplish their reading tasks.

Teaching Reading Skills

Teaching-learning of reading skills in the English as a Foreign Language (EFL) context is challenging for teachers and students. Because of this, students are taught reading skills so that they can improve other language skills such as speaking, writing, and listening skills. In addition, students are provided with reading materials derived from authentic and non-authentic reading texts (Albiladi, 2019). It aims to help students to acquire much more vocabulary from reading activities. In Indonesia, some studies in teaching-learning reading skills posit ELT approaches, methods, and strategies to improve students' reading skills such as Extending Concept through Language Activities (ECOLA) (Haerazi & Irawan, 2020), contextual teaching and learning approach (Albiladi, 2019), and Mind mapping technique (Rachman & Khatimah, 2018). Little bit of study on reading presents the role of metacognition, cognition, and self-regulation skills. Therefore, this study tries to involve students' metacognitive and self-regulation skills in developing reading tasks and materials to improve students' reading skills viewed from intelligence.

Intelligence

Indonesian higher schools are demanded to cultivate and deliver language learners with the necessary language knowledge, skills and abilities in order to manage and function the challenges of the work field. One of the cognitive abilities to support students' learning needs is intelligence. Intelligence is defined as "the cognitive ability to solve problems". According to Murray and Moore (2012), intelligence is "a series of mental skills or abilities". These include "linguistic intelligence, logical intelligence, spatial intelligence, musical intelligence, kinesthetic intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalistic intelligence". In general, using these multiple intelligences is expected that students are able to use language in creative ways, to think critically and logically, to cooperate with other students in the learning process, and to apply their talents successfully.

Methodology

Participants

The subjects of this study are first-grade learners of the Islamic-affiliated high schools (MAN/MA) at West Nusa Tenggara, Indonesia. The number of populations consists of 350 students. The researchers involved 50 students as the sample in the experimental study. A formal written informed consent was obtained from all participating students, detailing the study's purpose, procedures, and their rights, in adherence to the institute's ethics protocol. Also, the institution's ethic committee carefully reviewed the research design, ethical considerations, and participant consent procedures to ensure that the rights, privacy, and well-being of participants were protected throughout the study.

Design

The proper research design to develop the self-regulated learning materials (S-RLM) model was the research and development (R&D) design proposed by Cohen et al. (2018). The R&D design is classified as a study to generate educational products. The justification for using R&D in this context lies in its structured, step-by-step approach, which allows for comprehensive development, testing, and refinement of educational products. The educational product of this study includes the self-regulated learning materials (S-RLM) model. To attain the product, the R&D design is divided into four phases, namely defining the product, designing a learning product, developing and validating the product, and disseminating the final product.

Procedure

The R&D research process is started by defining the needs analysis. It is intended to meet students' learning and target needs. The learning needs denote what the students need to do in order to learn, while the target needs refer to what the students need to do in the target situation. Based on this result, the S-RLM model is designed and it is planned in the second phase. In the second phase, the researchers carry out an analysis relating to curriculum schools (K13) and Merdeka Curriculum (KM), focusing on the core competencies (KI) and basic competencies (KD). Furthermore, researchers design the reading learning goals, reading learning objectives, reading learning indicators, reading evaluation techniques, students' and teachers' roles, and reading activities and tasks. The third research step is developing the prototype of the S-RLM model. In the developing process, the model was evaluated by four ELT experts in advance. The experts are asked to evaluate and criticize the learning goals, core competencies (KI), basic competence (KD), learning indicators, classroom evaluation, students and teachers' role, and learning tasks. In doing so, researchers provide assessment sheets to be filled by experts. The comments and suggestions of the experts become a consideration for revising the product.

Afterwards, the researchers conduct an experimental study to know the quality of the S-RLM model. It was done at the Islamic-affiliated high schools at Central Lombok. The students are divided into experimental and control groups and each group consists of 25 students. The groups are chosen randomly using classical random sampling and the data are analyzed using statistical analysis. The t-test was applied to see the significant difference of the reading skills in the two groups. It was done using SPSS devices. In Addition, reading and intelligence tests are distributed for students in both groups. The intelligence tests are adapted from the Stanford-Binet Intelligence Scale and the Wechsler scales in verbal and non-verbal categories.

Results

This study focused on developing the S-RLM to improve students' reading skills. The development processes are directed to students' needs analysis and the implementation of the S-RLM model which is designed based on the results of needs analysis. The needs analysis covered target needs and learning needs. The aspects of target needs are necessities, lacks, and wants. Meanwhile, the learning needs covered input, learning styles, students' roles, teachers' roles, and classroom management. The results of target needs are presented in Table 1.

Table 1. *The target needs of the S-RLM model*

Target Needs	Aspects	Rank	Percentage (%)			
			Strongly agree	Agree	Disagree	Strongly disagree
Necessities	Students' needs of learning tasks to improve reading skills					
	Providing with reading tasks relating to religiosity	1	65.15	28.79	6.06	0.00
	Providing with reading tasks relating to social life	2	50.00	39.39	9.09	1.52
	Providing with reading tasks relating to informative texts	3	48.48	37.88	10.61	3.03
	Providing with reading tasks relating to texts of stories	4	45.45	34.85	13.64	6.06
	Students' needs of reading activities to improve reading skills					
	Preparing questions related to the topic of the reading	1	68.18	19.70	9.09	3.03
	Encouraging students to have a dynamic discussion	2	66.67	16.67	13.64	3.03
	Encouraging students to have summary writing	3	65.15	19.70	13.64	1.52
	Letting students regulate their reading	4	62.12	24.24	12.12	1.52
	Practicing problem solving skills	5	60.61	25.76	10.61	3.03
Lacks	Students' needs to improve through self-regulated learning					
	Reading strategies/ techniques	1	69.70	18.18	7.58	4.55
	Reading sub-skills	2	68.18	21.21	7.58	3.03
	Reading fluency	3	63.64	22.73	10.61	4.55
	Text comprehension building	4	59.09	25.76	7.58	7.58
	Meaning formation	5	50.00	31.82	10.61	7.58
	Students' current English language skills					
	Listening skills	1	71.21	19.70	6.06	3.03
	Speaking skills	2	69.70	22.73	4.55	3.03
	Reading skills	3	68.18	22.73	4.55	4.55
	Writing skills	4	66.67	28.79	3.03	1.52
Wants	Students' needs to monitor their reading skills					
	Grammatical competence	1	74.24	19.70	4.55	1.52
	Vocabulary mastery	2	71.21	25.76	1.52	1.52
	Reading fluency	3	68.18	27.27	3.03	1.52
	Linkages of background knowledge	4	65.15	31.82	1.52	1.52
	Reading comprehension	5	62.12	30.30	3.03	4.55

The components of target needs in Table 1 give a more detailed breakdown of what is important to students concerning improvement of their reading abilities. Under Necessities, students' needs for learning tasks and readings are evaluated, including religiosity, social life, informational texts and stories, otaseginate reading activities (such as preparing questions tnkdynaw discussions). Responses are divided into percentage of agreement levels. For Lacks, students' need for self-regulated learning is investigated: they are perceptive that they need improvement in reading strategies, sub-skills, fluent reading; comprehension; and meaning formation and that only on few occasions non-monitored beliefs are found. Also, students feel their proficiency in the English language at present with reference to listening, speaking, reading and writing is assessed. Finally, Wants comprises students' wishes to oversee their reading abilities, which cover grammatical proficiency, lexical knowledge, speaking fluency, background experience from the material they read and comprehension; responses have been categorized accordingly in the same way as Answers and Offerings. The objective needs of students appeal to are based on two general questions and include "learning tasks" and "reading activities" to improve reading skills in Islamic oriented high schools. The students' lack consisted of questions related to students' needs to improve by applying self-regulated learning and students' current level of English achievement. Thus, researchers seek learning needs dealing with inputs, learning styles, teachers' roles, students' roles, and classroom management. The following Table 2 presented the learning needs for developing self-regulated learning materials.

Table 2. *The learning needs of the S-RLM model*

Target Needs	Aspects	Rank	Percentage			
			Strongly agree	Agree	Disagree	Strongly disagree
Inputs	Students' needs of reading tasks of the S-RLM model					
	Reading tasks directing proper strategies to comprehend various texts/genres	1	65.15	25.76	4.55	4.55
	Reading tasks to monitor comprehension	2	62.12	31.82	3.03	3.03
	Reading tasks to identify meaning of difficult words from its targeted context	3	59.09	34.85	4.55	1.52
	Reading tasks from various texts	4	56.06	28.79	10.61	4.55
	Reading texts consisting of 200-500 words	5	53.03	27.27	16.67	3.03
Learning styles	Students' needs of learning styles during the implementation of the S-RLM model					
	Logical learning: Learn by analyzing	1	56.06	25.76	10.61	7.58
	Verbal (read/write) learning	2	50.00	34.85	9.09	6.06
	Kinesthetic: Learn by doing	3	46.97	39.39	7.58	6.06
	Interpersonal: Learn from others	4	45.45	40.91	13.64	0.00
	Naturalistic learning	5	43.94	37.88	16.67	1.52

Target Needs	Aspects	Rank	Percentage			
			Strongly agree	Agree	Disagree	Strongly disagree
Teachers' roles	Students' needs of teachers' roles during the implementation of the S-RLM in reading classes					
	Providing students with bits of help	1	53.03	37.88	4.55	4.55
	Re-explaining the reading tasks or materials	2	51.52	40.91	4.55	3.03
	Controlling the students' reading activities	3	50.00	39.39	6.06	4.55
	Organizing students' sub-skill of reading	4	46.97	40.91	10.61	1.52
	Facilitating students to monitor their reading comprehension	5	45.45	36.36	10.61	7.58
Students' roles	Students' needs of learners' roles during the implementation of the S-RLM in reading classes					
	Active learners	1	65.15	28.79	4.55	1.52
	Autonomous learners	2	63.64	31.82	3.03	1.52
	Reflective learners	3	62.12	28.79	6.06	3.03
	Self-regulating learners	4	60.61	31.82	4.55	3.03
	Collaborative learners	5	59.09	28.79	7.58	4.55
Classroom management	Students' needs of the S-RLM classroom management					
	Pair learning	1	56.06	31.82	10.61	1.52
	Individual learning	2	53.03	28.79	15.15	3.03
	Autonomous learning	3	51.52	31.82	13.64	3.03
	Large group learning	4	50.00	34.85	13.64	1.52
	Small group learning	5	46.97	31.82	16.67	4.55

Table 2 outlines the nuanced learning needs identified for the Self-Regulated Learning Materials (S-RLM) model, spanning inputs, learning styles, teachers' roles, students' roles, and classroom management. Students express a strong desire for reading tasks within the S-RLM that offer strategies to comprehend diverse texts and genres, monitor comprehension, and decipher the meanings of challenging words in context. Regarding learning styles, students exhibit preferences for logical, verbal (read/write), kinesthetic, interpersonal, and naturalistic learning approaches. In terms of teachers' roles, students expect educators to provide assistance, re-explain tasks or materials, control activities, organize sub-skills, and facilitate monitoring of reading comprehension. Lastly, classroom management preferences encompass pair learning, individual learning, autonomous learning, large group learning, and small group learning settings.

The whole findings are used as the main consideration in developing self-regulated learning materials in the teaching of reading skills at Islamic-affiliated schools. The teaching materials are designed based on the learning necessary, lacks, wants, inputs, learning styles, teachers' roles, students' roles, and classroom management. Based on the result of students' intelligence level, researchers distributed an intelligence test before using the S-RLM model in the reading classes. The test of it adapted the Stanford-Binet Intelligence Scale and the Wechsler scales in verbal and non verbal categories. In the pre-test, students' intelligence exists in moderate level (24.68). It means students have the potential intelligence to be developed by applying self-regulated learning through

meaningful reading activities. It is reflected in the result of the students' intelligence post-test in which the level stands in high level (26.56). The main issue of intelligence is centered on students' intelligence as "the cognitive ability to solve problems". The results of pre-test and post-test of students' intelligence is presented in Figure 1.

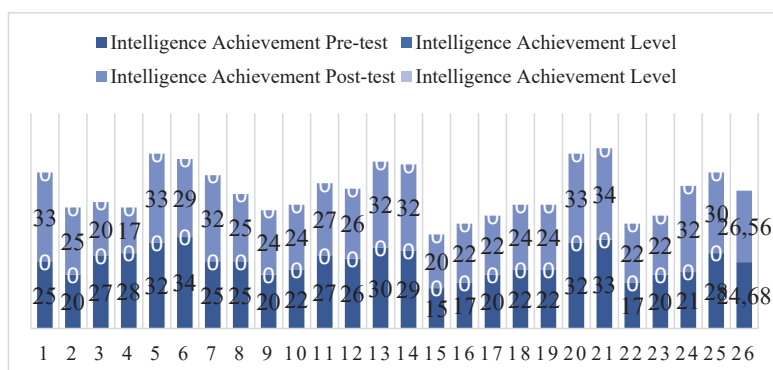


Figure 1. Students' Intelligence Level

To see the efficacy of the S-RLM learning activities, researchers go to experimental activities using experimental research design. Students are divided into two groups, experimental and control groups. The experimental group was treated using the S-RLM model, while the control was subjected to the existing teaching materials designed by the K13 publisher to improve students' reading skills. The reading achievements from the two groups are presented in Figure 2. Thus, Figure 3 shows the interaction between the S-RLM model and students' intelligence level in enriching students' reading skills.

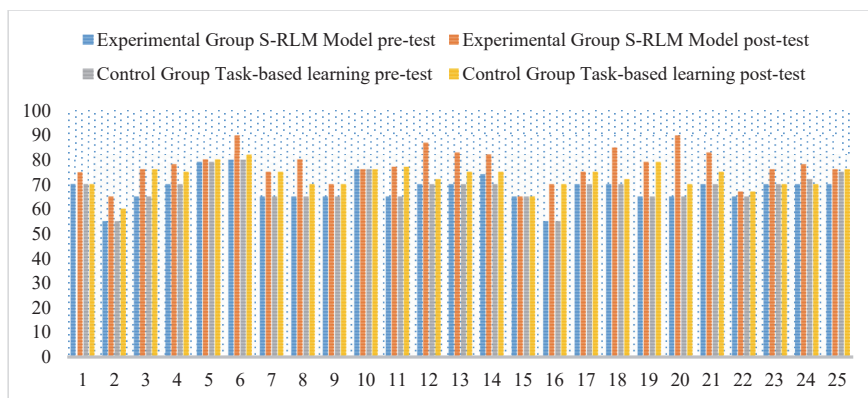


Figure 2. Reading Achievement in Experimental and Control Groups

Figure 2 presented the students' reading scores in pre-test and post-test from the two groups, experimental and control groups. In the experimental group of the pre-test, students' mean score was 68.16 while in the control group was 68.28. The students have the same level before giving treatments. The students in the experimental group are subjected to the S-RLM model and those in the control group are using the existing learning activities, i.e., task-based learning. In the post-test, students' reading scores are

77.52 for the experimental group and 72.88 for the control group. It indicates that the S-RLM model has a significant effect on students' reading skills.

Thus, researchers go to Variance Analysis to see the interaction between the S-RLM model and intelligence level to improve students' reading skills (Figure 3).

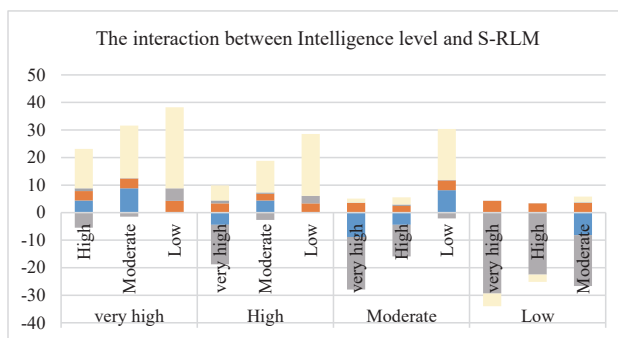


Figure 3. *The interaction between the S-RLM model and students' intelligence level*

Figure 3 presents the results of a Bonferroni post-hoc comparison to assess the mean differences in scores among groups with different levels of intelligence (very high, high, moderate, and low). The purpose of this test is to identify which pairs of intelligence levels differ significantly from each other. According to the ANOVA result, in which there were significant differences among five groups of students from low to very high intelligence levels high IQ level 4 on average tended to be categorized within the group "very high" (compared with a low intelligence group). The 95% confidence interval from 4.59 to 29.41 (gray and gold color) indicates that there is a meaningful directionally positive difference. Similarly, the "high" intelligence students scored significantly higher than the "low" group. The confidence interval between 2.67-22.48 (gray and gold color), however, does not include zero indicating this finding is significant statistically. The negative sign is only meaningful by indicating the difference in direction, but they do confirm that among low intelligence level students had much lower scores comparing "low" vs. "very high" and "high". In brief, and according to the Bonferroni test students belonging to the low intelligence group present significantly lower means than those of very high and high intelligence groups, though within all other categories of goodness this difference is not statistically significant.

Discussion

The present study formulated the self-regulated learning materials (S-RLMs) to enhance the reading skills, in relation to their intelligences, especially for EFL students from the Islamic-affiliated senior high schools. The results indicated that the S-RLMs encompass reading tasks about religiosity, social life information, informative texts and stories. These resources are created with activities that reading comprehension includes mindful talks, writing up summaries, monitoring how you read and problem-solving. The intention in including such tasks is to enhance students' metacognitive ability in terms of controlling or checking their learning process (Chen & Catrambone, 2015; Teng & Zhang, 2021). Nevertheless, the results showed that students still face difficulties of both reading and writing skills, and this study only concentrated on the former. Students must work on some key aspects like reading strategies, the sub-skills and pronunciation of

fluency and comprehension or their vocabulary. The S-RLMs were developed to meet this need.

In addition to focusing on reading skill, the design of S-RLMs was also guided by these learners' needs such as input, learning style, teacher roles and student roles; and classroom management. Islamic-based school students need reading tasks which are strategic approaches towards texts. In order to recognize main ideas more quickly, students make use of effective reading strategies (Soto et al., 2019). As reported in the literature, children with a higher self-efficacy are more likely to use reading strategies that improve their comprehension (Brevik, 2019). Moreover, students exposed to diverse reading activities tend to develop stronger strategic skills, improving their ability to understand texts (Kane et al., 2014; Lee & Schmitt, 2014). The S-RLM model aims to help students regulate their reading comprehension through specific activities, such as identifying difficult words in context, which also supports vocabulary development.

The study's data indicate that students employ learning styles that promote active learning through metacognitive, motivated, and strategic behaviors. One of the key goals of the S-RLMs is to foster students' independence and self-regulation (Mohammadi et al., 2020; Zheng et al., 2016). To achieve this, students are encouraged to use logical learning approaches, such as analyzing texts, which enhances their cognitive and metacognitive abilities (Par, 2018). These abilities are crucial for regulating students' engagement with learning tasks and achieving success (Haerazi & Kazemian, 2021; Kazemian et al., 2021).

A key learning style integrated into the S-RLMs is kinesthetic learning, or "learning by doing." This approach aligns with the study's findings, which suggest that hands-on learning encourages students to develop their own reading strategies (Bai & Wang, 2020). Due to limited class time, students are given opportunities to create and refine these strategies during reading activities. Teachers also guide students to reflect on and evaluate their progress. Students work in teams or pairs, which fosters collaboration and helps them stay on track with their strategies. However, students with low grammatical competence and vocabulary mastery often struggle with reading tasks. To support these learners, S-RLMs include word lists and simplified grammatical explanations (Teng, 2019). Teachers significantly contribute to the initiative of independent learning by engaging students in self-assessment and educating them about self-regulated reading practices (Bai & Wang, 2020). Even once students master the subskills of reading, many aren't independent.

The S-RLMs have been developed to assist students in monitoring and regulating reading comprehension. This also prompts students to choose the right reading types, leading to critical thinking (Kavani & Amjadiparvar, 2018). Intelligence contributes a lot in it, and to much extent, determines this process. Students with higher intellect are better also in the reading achievement than their peers with lower or moderate intellect performance (compare Figure 3). Students were involved in critical reading activities that aimed at logical and linguistic intelligences growth. To improve the skills, learners learned micro- and macro-reading strategies (Haerazi & Irawan, 2020), such as scanning and skimming texts for quick reading. Moreover, learners were also required to discuss the material they had read in class, providing evidence of understanding. However, some students were not willing to present due to low language proficiency, or lack of comprehension and fear of pronunciation errors. This was especially true for students with a strong local dialect included in their pronunciation. As a result, students wanted to focus on speaking as well as reading in the classroom.

As for the position of teachers, S-RLMs enable teachers to foster student engagement in reading contexts. This engagement is key to students making a shift in thinking. As highlighted in the literature review, one of the outcomes of self-regulation is the ability

to change behavior through cognitive transformation (Barr & Askill-Williams, 2020). In this study, students' transformation extended beyond improved reading skills to include personal growth, preparing them for future challenges and maturation. Teachers play a central role in this process, helping students develop the ability to control and monitor their learning. Ultimately, the goal is for students to become independent learners. To foster this independence, the S-RLMs encourage students to take responsibility for their learning, monitor their progress, and regulate their reading comprehension. Reducing teacher assistance during reading activities aims to boost student autonomy and confidence (Kavani & Amjadiparvar, 2018). At the same time, teachers provide essential clues and support to guide students in reading, discussing, writing, and problem-solving, facilitating their progress toward learning objectives.

Conclusion

This study was focused on developing the learning materials for self-regulated learning to improve students' reading skills. The development processes are directed to EFL students' needs analysis and the implementation of the learning materials which is designed based on the results of needs analysis. The needs analysis covered target needs and learning needs. The aspects of target needs are necessities, lacks, and wants. Meanwhile, the learning needs covered input, learning styles, students' roles, teachers' roles, and classroom management. The students' target needs of necessary are focused on two main questions dealing with learning tasks and reading activities to improve reading skills at Islamic-affiliated high schools. The students' lack consisted of questions related to students' needs to improve by applying self-regulated learning and students' current level of English achievement. Last but not least, students' wants as one of the aspects of target needs are designed to know students' needs to monitor their reading skills in the implementation of self-regulated learning. Thus, researchers seek learning needs dealing with inputs, learning styles, teachers' roles, students' roles, and classroom management.

The whole findings are used as the main consideration in developing the self-regulated learning materials in the teaching of reading skills at Islamic-affiliated schools. The teaching-learning materials are designed based on the learning necessary, lacks, wants, inputs, learning styles, teachers' roles, students' roles, and classroom management. Based on the results of data analysis, the main focus of self-regulated learning processes is critical reading improvement. To see the effect of the S-RLM, researchers assessed students' intelligence. Applying intelligences is expected that students are able to use language in creative ways, to think critically and logically, to cooperate with other students in the learning process, and to apply their talents successfully. The conclusion of this study showed that the S-RLM model was able to improve students' reading skills and the level of students' intelligence has a strong effect on students' reading comprehension.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

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