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Student Self-Regulation among Secondary School Students in Remote Areas Using an Adapted Questionnaire

Erlin Eveline[1] Eka Triyana[1]

[1]Universitas Pattimura
Email: [1]erlin.eveline12@gmail.com

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Abstract

Self-regulation is the ability to manage oneself. Self-regulation is an important factor that can influence learning outcomes. In remote areas, students often face challenges such as limited infrastructure and access to technology. This study aims to determine the self-regulation of high school students in remote areas using an adapted instrument. The method used is quantitative. A total of 59 high school students, comprising 37 11th-grade and 22 12th-grade students from Permata Kasih High School, served as respondents. The instrument used was an adapted version of the Taiwanese Short Self-Regulation Questionnaire (Chen & Lin, 2018). Data were analyzed using the Pearson correlation coefficient and descriptive statistics. The results show that students' self-regulation levels are generally in the medium and low categories. Self-regulation among female students is higher than among male students but it is not significant. Students' self-regulation abilities can be influenced by various factors, including the availability of educational facilities and infrastructure, as well as educational interventions, such as integrating self-regulated learning strategies into instruction.

Keywords: students, self-regulation, remote area, secondary school, adapted questionnaire

INTRODUCTION

Self-regulation is a crucial aspect of the learning process, encompassing students' ability to independently plan, monitor, and evaluate their learning behavior and strategies. Self-regulation significantly impacts how students manage their time, set goals, overcome obstacles, and maintain motivation to achieve optimal learning outcomes. However, in reality, not all students possess strong self-regulation skills, particularly those living in remote areas. Students in these areas generally face various limitations, such as limited access to learning resources, a lack of academic support, and limited educational support facilities. These factors can impact students' ability to manage their learning process independently, ultimately affecting their academic achievement.

Self-regulation is influenced by the learning environment. The better a person's learning environment, the higher their self-regulation (Masir & Budiman, 2017). Furthermore, self-regulation and self-efficacy contribute 58.1% to student procrastination (Panggabean, 2023). These results indicate that students need strong self-regulation. Other studies have found that significant factors influencing educational differences between students in urban and rural areas in terms of academic achievement include learning motivation, educational aspirations, learning efficacy, future aspirations, additional educational support (private tutoring), and family economic status at the student level, as well as after-school activities, physical and psychological environment, teacher competence, and school location at the school level. However, individual and family characteristics of students have a greater influence than school-level factors on educational disparities between rural and urban areas (Rajkumar & Soundararasan, 2014).

Meanwhile, several studies also discuss self-regulation, including its influence on students' motivation to learn and learning outcomes (Friskilia & Winata, 2018; Hasan et al., 2021) and on students' levels of self-regulation (Atmoko et al., 2022; Septiamalia & Satwika, 2023).

Several studies have also examined other student attributes, including those by Lestari, Eveline & Permatasari (2022), who researched the self-efficacy of prospective elementary school teachers originally from remote areas. The results show that the self-efficacy levels of prospective teachers from remote areas are average. Most of the samples taken focused on students in urban schools. However, studies of students' self-regulation levels in specific regions, such as remote areas, have not yet been explored. This study examines self-regulation in a specific geographic context, namely students living in remote areas.

To measure self-regulation effectively, a valid, practical, and easy-to-use instrument is needed. One such instrument is the Taiwanese Short Self-Regulation Questionnaire (TSSRQ), which is designed to assess individuals' self-regulation abilities across specific domains. The TSSRQ encompasses dimensions such as goal setting, goal attainment, mindfulness, adjustment, and proactiveness. This study aims to describe the self-regulation levels of secondary school students in remote areas using the TSSRQ, thereby providing a picture that can serve as a guideline for action to improve the quality of education in those areas. The results of this study are expected to serve as a basis for developing more adaptive and contextual learning strategies to improve student self-regulation in remote areas.

RESEARCH METHOD

The purpose of this study was to determine the level of self-regulation among secondary school students in a remote area using valid and reliable instruments and to formulate strategic recommendations to improve students' self-regulation abilities. This research is a descriptive study with a quantitative approach. The study began by translating an adapted instrument, the Taiwanese Short Self-Regulation Questionnaire (TSSRQ) developed by Chen & Lin (2018), into Indonesian. This instrument consists of 22 items covering five aspects: goal setting, goal attainment, mindfulness, adjustment, and proactiveness.

Table 1. Percentage of Respondents by Gender

Gender	Number	Percentage
Female	37	64.41%
Male	21	35.59%

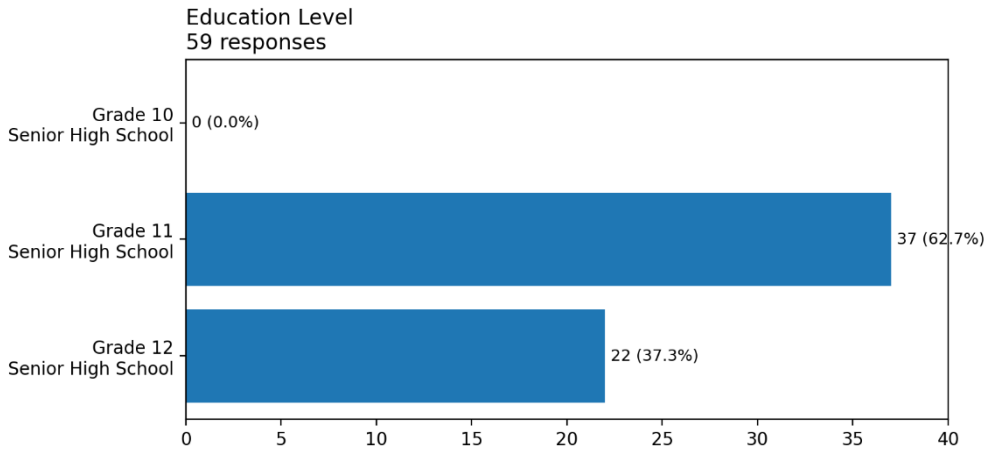

Figure 1. Respondent's Education Level

Afterward, the researcher asked the students to complete the questionnaire. The research subjects consisted of 59 students from Permata Kasih High School. Respondents consisted of 37 11th-grade and 22 12th-grade high school students. Respondents, by gender, were 37 females and 21 males. The data from the students' responses were then analyzed using descriptive statistics by educational level and gender. In general, the research flow was sequential as follows: (1) instrument translation (adaptation), (2) asking students to fill out the

questionnaire, (3) student questionnaire response results, (4) quantitative data analysis, (5) interpretation of the results, and (6) conclusions.

The first data analysis was the calculation of the instrument's internal consistency, as indicated by the Cronbach's alpha coefficient. This value indicates the extent to which the instrument's items measure the same construct, resulting in consistent scores (Cohen, L., Manion, L., & Morrison, K., 2002). Next, inter-item correlations were calculated to assess the relationship between pairs of items within the scale. In addition, the analysis calculated corrected item-total correlations to determine each item's contribution to the overall construct being measured and Cronbach's alpha if an item is deleted to identify specific items that can be deleted to improve the scale's internal consistency significantly. Corrected item-total correlations indicate how closely each item is related to the total score. High corrected item-total correlations indicate that the item is a good indicator of the overall construct (Badillo-Sánchez et al., 2025, May).

RESULTS AND DISCUSSION

The instrument used to measure student self-regulation was first tested for reliability. The results of the reliability test are shown in Table 2 below.

Table 2. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.681	0.680	22

Reliability was measured using Cronbach's alpha. The overall Cronbach's alpha was 0.681 for 22 items. The instrument demonstrated adequate initial reliability, but it was not yet considered high. However, the instrument demonstrated adequate internal consistency among the students in the study sample.

Table 3. Item-Total Statistics

Items	Corrected Item-Total Correlation	Interpretation	Cronbach's Alpha if Item Deleted	Interpretation
SR01	.476	Good	.645	Lower
SR02	.310	Fair	.664	Lower
SR03	.212	Weak	.674	Lower
SR04	.483	Good	.641	Lower
SR05	.281	Weak	.668	Lower
SR06	.053	Weak	.686	Higher
SR07	.434	Good	.653	Lower
SR08	.136	Weak	.679	Lower
SR09	.158	Weak	.681	Equal
SR10	.397	Fair	.656	Lower
SR11	.237	Weak	.672	Higher
SR12	.164	Weak	.678	Higher
SR13	.508	Very Good	.639	Lower
SR14	.390	Fair	.656	Lower
SR15	.267	Weak	.670	Lower
SR16	.054	Weak	.686	Lower
SR17	.327	Fair	.664	Lower
SR18	.374	Fair	.661	Lower
SR19	.348	Fair	.661	Lower
SR20	-.315	Fair	.728	Higher
SR21	.343	Fair	.663	Lower
SR22	-.252	Very Weak	.712	Higher

Next, an analysis of the questionnaire items was performed, as shown in Table 3. The analysis was conducted on the corrected item-total correlation and Cronbach's alpha with item-deleted values. The corrected item-total correlation indicates that most items have a positive correlation with the total score. Only SR13 showed the highest item-total correlation (r=0.508) and was included in the very good category. The corrected item-total correlation values indicate that each item contributes to the scale's internal consistency. However, this value remains low. This study is a preliminary evaluation of students in remote areas. Table 2 also presents the Cronbach's alpha values if items are deleted. This value is used to see whether deleting items can reduce overall reliability (Chin, M. K., & Siew, N. M., 2015). The overall Cronbach's alpha (0.681; Table 2) can be used to compare Cronbach's alpha after deleting each item. Based on the comparison results, the Cronbach's alpha value after deleting each item is lower than the overall Cronbach's alpha value, except for items SR16, SR20, and SR22, which produce higher Cronbach's alpha values when deleted. The results of this study indicate that some items need to be reconsidered. However, these items are retained because they are part of the validated TSSRQ instrument.

Next, an analysis of the questionnaire items was conducted, as shown in Table 3. The analysis focused on the corrected item-total correlation and Cronbach's alpha if item deleted values. The corrected item-total correlation indicates that most items show a positive correlation with the total score. Only SR13 exhibits the highest item-total correlation (r = 0.508) and falls into the "very good" category. The corrected item-total correlation values indicate that each item contributes to the scale's internal consistency; however, they remain relatively low. This study serves as a preliminary evaluation involving students in remote areas.

Additionally, Table 2 presents the values of Cronbach's alpha if item deleted. This value is used to determine whether removing an item would lower overall reliability (Chin, M. K., & Siew, N. M., 2015). The overall Cronbach's Alpha (0.681; Table 2) serves as a benchmark against which the "Cronbach's Alpha if item deleted" values are compared. The comparison reveals that, for most items, the Cronbach's alpha value following their deletion is lower than the overall value; however, deleting items SR16, SR20, and SR22 results in a higher Cronbach's alpha. These findings indicate that certain items warrant reconsideration. Nevertheless, these items were retained because they are part of the validated TSSRQ instrument.

Table 4. Item Statistics

Items	Mean	Std. Deviation
SR01	2.86	1.025
SR02	2.63	1.032
SR03	3.98	.707
SR04	3.22	1.146
SR05	3.90	.824
SR06	3.95	.729
SR07	2.90	.885
SR08	4.08	.624
SR09	2.93	1.032
SR10	2.76	.916
SR11	3.81	.730
SR12	3.83	.673
SR13	3.03	1.114
SR14	2.86	.937
SR15	3.07	1.201
SR16	3.88	.697
SR17	4.03	.787
SR18	4.08	.749

Items	Mean	Std. Deviation
SR19	2.58	.932
SR20	3.25	1.027
SR21	3.86	.798
SR22	3.68	.819

Table 4 presents the descriptive statistics for the student responses. The mean values—representing the average respondent answers for each item—range from 2.58 (SR19) to 4.08 (SR08 and SR18). This range indicates that responses varied, with no items eliciting extreme reactions. The diversity of responses is further reflected in the standard deviation values, which range from 0.624 to 1.201; item SR08 yielded relatively consistent responses (SD: 0.624), whereas item SR15 elicited much more varied responses (SD: 0.624).

Table 5. Self-Regulation Levels Based on Dimensions

Domain	Mean	
	Male	**Female**
Goal Setting	2.52	2.87
Goal Attainment	4.03	3.86
Mindfulness	2.69	3.01
Adjustment	3.71	3.74
Proactiveness	3.74	3.51
	3.39	3.43

Table 5 above presents the calculated average self-regulation scores for students, categorized by gender—specifically the averages for male students, female students, and the overall score. A 1–5 Likert scale was used, with higher scores indicating better self-regulation; negative statements were reverse-scored. Overall, the results indicate that the students possess a relatively high level of self-regulation. The goal attainment dimension recorded the highest average score, while the mindfulness dimension recorded the lowest.

Based on Table 5, the average score for females is higher than that for males. This indicates that female students tend to exhibit better self-regulation than male students across all aspects (goal setting, goal attainment, mindfulness, adjustment, and proactiveness). However, the difference in mean scores between males and females is not statistically significant. This is evidenced by the results of the difference test, which show no significant difference in self-regulation levels between male and female students ($t(57) = -0.543$, $p = 0.589$).

Table 5. Test of Normality

Test	Hasil Uji	Interpretation
Normality Test (Shapiro-Wilk)	0.092 (Male)	Normal
	0.209 (Female)	Normal
Levene's Test	0.062	Equal variances assumed
t-test	0.589	No significant difference in self-regulation between male and female students

Several statements indicate that students in remote areas possess low levels of self-regulation. These include statements regarding personal goal-setting such as "I struggle to create a plan to help me achieve my goals"—and mindfulness (the ability to consciously focus on the present experience or awareness) such as "I have trouble finishing things once I have decided to do them," "I often do not pay attention to what I am doing," and "I find it difficult to make decisions about things." Based on these results, the mindfulness aspect has a lower average than the other aspects. These statements suggest that the students' resilience in the face of difficulties, self-monitoring capabilities, and decision-making skills remain low.

Similar findings emerged from research conducted by Liu, He, Zhao, and Hong (2021), who found that female students outperformed male students in eight out of nine self-regulated learning (SRL) strategies, including elaboration, organisation, metacognitive strategies, and effort regulation. Silfia (2021) reported that female students achieved higher SRL scores than male students in English learning at MAN 3 Banda Aceh.

Research findings indicate a need for interventions to enhance students' self-regulation, particularly in areas where they struggle. Such interventions could involve integrating self-regulated learning strategies into instruction. These strategies can be implemented through activities such as setting learning goals prior to instruction, teaching learning strategies and encouraging self-monitoring during lessons, providing opportunities for self-reflection and feedback, and employing active learning methods.

CONCLUSION

Research findings regarding student self-regulation data indicate that female students achieved higher average scores than male students across nearly all aspects of self-regulation—namely goal setting, goal attainment, mindfulness, adjustment, and proactiveness. Furthermore, certain aspects of self-regulation remain low among students overall; for instance, mindfulness shows deficiencies in personal goal setting, resilience in the face of adversity, self-monitoring, and decision-making. This situation highlights an urgent need for interventions to strengthen self-regulation, particularly in these specific areas.

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