

Self-Regulated Learning Strategies on Academic Writing: Differences Between Genders

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Abstract. Six categories—motivation, method, timing, performance, physical environment, and social environment—are used to classify self-regulated learning (SRL) processes in academic writing. Due to the more difficult academic papers, they must write in English, university students may adopt SRL methods when generating academic writing. Students who are male or female may have various preferences when it comes to using SRL techniques in academic writing. The purpose of this study is to examine the aspect of SRL that English Language Education Department (ELED) students use the most frequently and to determine whether there is a statistically significant difference in the attitudes of male and female ELED students toward the usage of SRL tactics in academic writing. The research design for this study is a survey, and it uses a quantitative methodology. 112 ELED students from the 2019 batch participated in this study and answered the "The six dimensions of SRL in academic writing" questionnaire, which was adapted from Abadikhah, Aliyan, and Talebi (2018). The results showed that students implement all six aspects equally, with the social environment dimension having the highest mean ($M=3.76$, $SD=.60$) and the time dimension having the lowest mean ($M=3.09$, $SD=.65$). The t-test result is .439. This means that the significance level is less than 0.05 (2-tailed). Therefore, it may be inferred that attitudes concerning the use of SRL methods in academic writing are similar for both male and female students.

1 Introduction

English has four main aspects: reading, writing, listening, and speaking. A cornerstone of determining a student's progress in learning English can be looked at by their prowess in academic writing. There are several challenges students may experience when dealing with academic writing. These include limited writing experiences, different patterns for developing academic texts across native languages, and a limited understanding of English academic writing style. Furthermore, students learning English as a second language also

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tend to encounter problems with coherency and cohesion, paraphrasing, citations, referencing, and expressing their opinions concerning works they have previously read [1, 2]. A factor that may contribute to students' struggles in academic writing is their need for more awareness of SRL strategies. Teng and Zhang [3] have shown that the SRL method can help students improve their writing by providing a clearer understanding of L2 processes in its framework. SRL methods substantially determined students' writing competency [4]. Thus, students must retain their SRL strategies before beginning the learning process.

Self-regulated and goal-oriented learning have become important topics in educational psychology, according to Farsani, Beikmohammadi, and Mohebbi [5], because of their effect on students' achievements (p. 1). Additionally, SRL methods have an impact on student accomplishment by assisting students in organizing and methodically absorbing and remembering information [6]. Zimmerman [7] asserts that SRL is outcome-dependent, multidimensional in context, and dependent on the application's context rather than being unique to students (p. 75). The impact on students' learning outcomes of the SRL dimension is considerable. However, based on the researcher's observations, students can only use certain fundamental SRL dimensions in learning. In order to maximize their learning, Zimmerman [7], concluded that students should self-regulate all significant performance variables.

Students' perspectives on applying the various SRL strategy components in the classroom vary. Additionally, there are instances when male and female students are more or less inclined to use SRL methods during learning. Supporting evidence for this assertion is provided by Demirören, Turan, and Öztuna [8], who said that gender disparities have been identified in academic self-efficacy and self-efficacy for utilizing self-regulatory approaches (p. 2). Female students generally manage their SRL strategies—that is, learning materials and evaluating learning progress—well, according to earlier research by Sadeghi [9]. Male students, however, don't always follow the SRL procedures before class. The research conducted by Kim, Wang, Ahn, and Bong [10] supports this claim. Their findings showed that male students have lower self-efficacy for using SRL approaches in their learning than do female students.

Six dimensions—motive, method, time, performance, physical environment, and social environment—comprise the practical framework for SRL techniques. These parameters were first proposed by Dembo et al. [11] and are used to gauge the effectiveness of applied SRL methods among students.

The motive dimension of SRL is defined as how students understand the reason for learning a certain topic and why they use certain methods in their approach [12]. While not necessary adhering to the same frameworks, Pintrich [13] adopted a similar framework outlining areas of regulation for students using SRL methods. Motivation refers to how learners regulate motivational beliefs, such as their self-efficacy, personal interest, and goal orientation. Furthermore, since motivation to learn also goes hand in hand with students' emotions when faced with learning activities, the motivational dimension also looks at emotional regulatory mechanisms set in order to associate learning with positive emotions. However, Mega et al. [14] demonstrate that SRL and motivation act as mediators between emotions and academic achievement. From a study of over 5,800 undergraduate students, they argued that academic achievement cannot simply be brought about through positive emotions alone but must be reinforced by the learner's motivation and the SRL methods used by the learner. Thus, how a learner is able to maintain positive emotions and motivation associated with learning is a key part in understanding the SRL framework.

Such emotional aspects that happen during learning go hand in hand with the performance dimension. The performance dimension looks at how learners evaluate themselves and their accomplishments towards the overall goal of their learning. Yan [15]

argues that the process of self-assessment happens throughout the SRL process and acts as a central hub, interconnecting all phases of the SRL process. This begins from actions such as determining learning goals and strategies to achieve their aforementioned learning goals. Students go onto monitor their learning progress, making sure that their learning stays on track. Finally, students evaluate the course of their learning by reflecting on their strengths and weaknesses. Panadero et al. [16] argue that there is a gap in self-assessment research that does not account for the individual characteristics that may impact their initial assessment and instead recommends that SRL strategies should be focused on self-feedback rather than self-assessment. This is in line with Yan's [15] previous statement that self-assessment should not be used as an assessment method but should be employed as a learning strategy instead.

Most educational institutions make it a point for students to seek other methods of learning besides sole instruction by a teacher figure, whether it be from peers, tutors, other teachers, and other people that can aid them along the process [12]. This is in line with the aspects of learning environments of De Corte et al. [17], who argued that SRL had to be done in a cooperative learning environment so as to give students multiple points of views towards the materials at hand. Furthermore, Dignath [18] concluded through their research in finding out how teachers can foster SRL-friendly environments, that there was a positive association between the implementation of SRL methods among students and instruction of SRL by teachers. The connection between external support and learning progress is not only seen in the classroom, but also at home. Thomas et al.'s [19] research on parental support among adolescents implementing SRL methods found that there was a positive association between parental involvement and student SRL skills, especially in their motivational aspects. In this sense, the social environment dimension of SRL is a collaborative effort between the learner and their interactions with the people around them.

The physical environment dimension measures how students can make their studying environment as supportive as possible for learning by removing distractions such as noise, entertainment, and other things that may demotivate them from learning [20]. Physical environment has been proven to have significant impacts on student academic performance, and is paramount to student development [21]. Furthermore, there is a positive association between academic achievement and quality of school environments, so much so that architecture, visual aids, acoustics, and lighting can influence student academic outcomes [22].

Similarly, the time dimension covers how a student manages their time on different parts of the learning process. Wolters & Brady [23] define the time dimension as how students manage learning resources, set goals under time constraints, and plan future processes engaged towards their learning. Between the phases of SRL, some researchers view SRL as a part of the task definition stage, while others view it as a continuous process that take place throughout the stages of SR [24, 25]. There is general consensus, however, that there is a positive association between time management strategies and cognitive and metacognitive regulatory learning strategies [26, 27].

Finally, the method dimension describes the different techniques students employ to finish tasks. As SRL is a student centered learning method, it is paramount that learners are able to best identify strategies that work for them and increase their self-efficacy [12].

It is clear from all of the aforementioned statements that male and female students use SRL techniques for learning in different ways. The research will focus on two research questions:

- a. Which dimension of SRL strategies is the most frequently used by the students?
- b. Are there differences between male and female students' attitudes in the employment of SRL strategies?

The research can be helpful for teachers to teach the SRL strategies in writing classes. Knowing that one dimension is used more than the other, teachers can strengthen the other dimensions so that the students can employ all dimensions equally. Similarly, students can learn to improve the other dimensions of SRL strategies to meet writing teachers' expectations. The study can also examine whether academic education enables students to develop their writing skills over time and become more self-reliant. Students can complete the academic writing learning process by managing the right SRL methods.

2 Research Method

2.1 Research Instruments

This research used the quantitative method to gather data from the participants because it could help the researcher to investigate the students' attitudes, whether they showed positive or negative attitudes toward SRL strategies in academic writing. The statement is in line with Apuke [28], who states that quantitative research involves quantifying and analyzing numerical data using statistical methods to obtain results. Therefore, this research aimed to investigate university students' attitudes and the influence of SRL on university students' academic writing abilities.

The researcher chose a survey design for this study, and an online questionnaire was distributed to collect the data from the participants. This data collection method follows Phillips's (2016) about surveys as a method to collect information from people, especially on topics that concern human phenomena, such as emotions and opinions. Furthermore, the researcher's use of surveys also fits with Phillips's (2016) guidelines of when to use surveys, as the subject being researched is relatively novel and well-designed. According to the previous statement, the survey design helped obtain answers about students' attitudes toward SRL strategies in academic writing. Thus, the survey design was appropriate for this study to analyze the data from the participants.

2.2 Population and Sample

The participants in this study's data collection process were asked to complete a questionnaire. According to Creswell [30], a questionnaire is a form that study participants complete and return to the researcher as part of a survey design (p. 382). There were 60 questions on the questionnaire, each translated into Indonesian so that participants could answer easily. The questionnaire took 10 to 15 minutes to finish. At the start of the survey, participants gave their consent. They then filled out the questionnaire if they agreed. Participants were thanked for their assistance and support when it was finished.

2.3 Instruments

"The Six Dimensions of SRL in Academic Writing Questionnaire" is the research instrument used in this study. The questionnaire items were adjusted based on research conducted by Abadikhah, Aliyan, and Talebi [20] titled "EFL Students' Attitudes towards Self-Regulated Learning Strategies in Academic Writing." The 60 questions on the questionnaire were broken down into six dimensions, namely: performance, physical environment, motive, method, time, and social environment. The table below details the various numbers of questionnaire items for each dimension.

Table 1.

The questionnaire item number and number of items for each dimension

Dimension	Item number	Number of Items
Motive dimension	1, 2, 9, 10, 17, 18, 25, 26, 33, 34, 39, 44, 51, 60	14
Method dimension	8, 16, 24, 32, 38, 43, 50, 53, 56, 58	10
Time dimension	7, 15, 23, 31, 37, 42, 49, 54	8
Performance dimension	3, 5, 11, 13, 19, 21, 27, 29, 35, 40, 45, 46, 47, 52, 55, 57, 59	17
Physical environment dimension	6, 14, 22, 30, 41	5
Social environment dimension	4, 12, 20, 28, 36, 48	6

English was the original language of the composition. To avoid misunderstanding, it was afterwards translated into Indonesian. The students were given access to the questionnaire online. Three lecturers from the English Language Education Department of an Islamic private institution in Yogyakarta undertook an expert judgment to determine the authenticity of the questionnaire items, particularly the translated version. All of the survey items passed the validity test, according to the results of this study. Additionally, Abadikhah, Aliyan, and Talebi [20] calculated the reliability score for their earlier study using this questionnaire, and the results showed that the items were extremely highly reliable with a Cronbach's Alpha value of 0.95.

2.4 Data Analysis

Descriptive statistics were mostly used in the analysis of this study. According to Mishra et al. [31], it is appropriate to test hypotheses by analyzing participant replies using descriptive statistics. Additionally, the researcher employed SPSS Statistics' descriptive statistics to move on with the data results. Indicators of central tendency (means, modes, and medians), measurements of dispersion (standard deviation), frequencies, standard deviations, crosstabulations, and standardized scores are all components of descriptive statistics, according to Mishra et al. [31]. To determine the responses to the research questions, the researcher calculated the questionnaire's outcome data.

Moreover, the researcher used the mean of each dimension from the results to see which dimension had the highest mean. The six conceptual dimensions were classified and interpreted based on Oxford and Burry-Stock's [32] three different levels of language strategies and learning use (p. 12). The categories are high (means of 3.5-5.0), moderate (means of 2.5-3.4), and low (means of 1.0-2.4).

To determine if the data was normally distributed, a normality test was used. The researcher used the Kolmogorov-Smirnov feature provided by SPSS Statistics. Then, the researcher checked the gender of males and females using the normality test. The data are considered normal if the Sig. (2-tailed) value of each variable is higher than 0.05 ($\alpha > 0.05$). After the data were proven normal, the next step, the homogeneity test and t-test, could be run.

The homogeneity test was used to verify the data after the normalcy test in order to ascertain the variance between the variables. If the Sig value is greater than 0.05 ($\alpha > 0.05$),

the data are classified as homogenous. A t-test could be used by the researcher to carry out additional analysis once the data are homogeneous and normal.

The t-test was used to test the difference between the two groups. Cohen, Manion, and Morrison [33] state that the t-test is used with parametric data using random samples with a normal distribution to ascertain whether there was a statistically significant difference in the means of the two groups (p. 642). After calculating the result data, the researcher will obtain the answer to the research question.

3 Research Findings and Discussion

3.1 Research Findings

"How significant is the difference in the implementation of SRL strategies between male and female ELED students' attitudes in academic writing?" is the study's first research question. The mean score was examined in order to assess the data using an independent sample t-test. Before performing the t-test, the normality and homogeneity tests are performed to ensure that the data are both normal and homogenous. The data for the male students ($p=.137>.05$) and the female students ($p=.200>.05$), as displayed in Tables 2 and 3, are both normal. Furthermore, in Table 4, the homogeneity test also shows that the data are homogeneous ($p=.013>.05$). Moreover, the researcher looks at the Sig to find the significant difference. (2-tailed) score and the Sig. of Levene's Test for Equality of Variances. There is no discernible difference between male and female students in the application of SRL methods in academic writing of ELED students at Islamic private university batch 2019, as demonstrated in Table 5 by the independent sample t-test result ($p=.439>.05$).

Table 2.
Normality test for male students' attitudes

One-Sample Kolmogorov-Smirnov Test		
	Attitudes	
N	25	
Normal Parameters ^{a,b}	Mean	204.76
	Std. Deviation	37.704
Most Extreme Differences	Absolute	.152
	Positive	.152
	Negative	-.089
Test Statistic	.152	
Asymp. Sig. (2-tailed)	.137^c	
a. Test distribution is Normal		
b. Calculated from data		
c. Lilliefors Significance Correction		

Table 3.
Normality test for female students' attitudes
One-Sample Kolmogorov-Smirnov Test

	Attitudes	
N	87	
Normal Parameters ^{a,b}	Mean	210.32
	Std. Deviation	29.625
	Absolute	.059

Most Extreme Differences	Positive	.059
	Negative	-.037
Test Statistic		.059
Asymp. Sig. (2-tailed)		.200^{a,d}

Table 4.
Test of homogeneity of variance

	Levene Statistic	df1	df2	Sig.
Based on Mean	2.911	1	110	.091
Attitudes Based on Median	1.800	1	110	.182
Based on Median and with adjusted df	1.800	1	95.956	.183
Based on trimmed mean	2.558	1	110	.113

Table 5.
Independent sample test

	Levene's Test for Equality of Variances		t-test for Equality of Mean				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	2.911	.091	-	110	.439	-5.562	7.163
Equal variances not assumed			-	32.981	.501	-5.562	8.182

To determine the mean of all dimensions, the researcher analysed the data by means of descriptive statistics. As seen in Table 6, three dimensions of SRL strategies in academic writing (social environment, performance, and method dimensions) achieve a high-frequency use (3.55-3.76), with the social environment in the highest rank (3.76). Meanwhile, the other three dimensions (physical environment, motive, and time dimensions) obtain a moderate level of use (3.09-3.41), and the time dimension shows the lowest frequency (3.09) (see Appendix for complete tabulation).

To gain more insight into the application of the SRW technique, the mean score for each item across all dimensions was also analyzed. There is an intriguing discovery in the field of social environment. Every item in this dimension is often utilized by students. Item number 12 (using the Internet and library resources to find the information I desire) has the

highest mean (4.12). The performance component came in second, despite item number 50 (calling or texting classmates about the missing writing work) having the lowest mean score (3.55). The most often used approach in this dimension is item number 59 (open to adjustments based on the received input), with a value of 4.19; the least frequently used strategy is item number 3, which instructs students to seek advice from an expert if they are having trouble writing, with a value of 3.12. The method dimension is third on the list. Before turning in their essay, most students proofread it. It is evident from this strategy's highest mean score (4.10). However, they rarely organize their ideas before writing. This strategy shows it by the lowest mean score (2.56).

Table 6.
Ranking of the means scores of the six dimensions

	N	Mean	SD	Rank
Social environment	112	3.76	.60	1 (high)
Performance	112	3.65	.58	2 (high)
Method	112	3.55	.57	3 (high)
Physical environment	112	3.41	.75	4 (moderate)
Motive	112	3.35	.62	5 (moderate)
Time	112	3.09	.65	6 (moderate)

The high mean score (4.02) in the physical environment component, the fourth rank, indicates that students cannot study in a dark room. On the other hand, the least used tactic when writing is to block out noise (2.90). Moreover, the motive dimension is the fifth rank. Students claim they can produce papers that are coherently structured, have a strong introduction, body, and conclusion (3.72). It shows that they are aware of good writing technique. But rarely do the students create a thorough schedule for their writing assignments (2.60). The time dimension is the one that is used the least. Item number 23, which indicates that the students maintain up with the weekly writing assignment, has the highest mean score (3.45). Meanwhile, spending time each day planning for writing obtains the lowest mean score (2.63).

3.2 Discussion

The results show statistical differences in attitudes to implementing SRL strategies within academic texts among male and female ELED students. The findings also showed that gender differences did not significantly affect the attitudes of males and females with regard to implementing SRL strategies in their academic writing. Therefore, it can be concluded that there is no variance in the implementation of SRL strategies in academic writing among junior students at English Language Education Department Islamic private university between male and female students. Furthermore, based on the result of this study about the SRL strategy that is frequently used by ELED students in academic writing, the researcher found frequently used SRL strategy based on the highest mean. The result showed that social environment is ranked with the highest mean which indicates the highly regulated SRL strategy in academic writing by ELED students. This result implies that students mostly use the internet and library resources to gain writing materials or ask help from teachers, peers, and seniors to accomplish their writing tasks. Therefore, it can be concluded that the ELED students batch 2019 agree that they often implemented the social environment dimension in academic writing.

The results show that male and female ELED students are not significantly different in implementing SRL strategies in academic writing. It means that the students in this research

experienced what Shen and Bai [34] argued the difference between believing that gender is only a biological construct and believing that gender is a social construct may explain the non-significant gender effects. Moreover, gender differences in SRL disappear when gender stereotypes or beliefs about gender are considered [35]. Furthermore, Malpique et al. [36] reported that gender differences in strategies utilizing self-regulated writing were not found in the implementation of SRL strategies in academic writing. It shows that both male and female students are able to utilize the dimensions of SRL strategies based on their needs during the academic writing process. This result might have no significant differences because the students are still learning in producing academic writing, especially since they are majoring in English Language Education which has to write papers in English. Thus, both male and female students experienced similar writing challenges, which resulted in no significant differences in the implementation of SRL strategies in academic writing.

The results report that the social dimension is the high-frequency use of SRL strategies in academic writing by ELED students' batch 2019. Thus, it shows that the students experienced what Umamah and Cahyono [37] mentioned that the students were inquiring about content and grammar from their seniors, peers, and teachers; also considering employing both offline (dictionaries, books, and word processing software) and online resources (online dictionary, online grammar checker, and Google). Furthermore, university students prefer to seek social support [38]. Tran [12] in his study also found that students prefer to frequently use social dimensions and have trouble managing time during academic writing. On the other hand, ELED students seem rarely to implement the time dimension in their writing process. This is supported by the statement from Umamah and Cahyono [37] in which students faced difficulties in time management. Abadikhah, Aliyan, and Talebi [20] also found that challenges in time management appear when a person may not have a specific goal in mind (p. 13).

4 Conclusion

This research was conducted because the researcher is interested in SRL strategies, especially in academic writing. Writing is an activity that is frequently assessed by teachers, but students sometimes face difficulties in a writing activity. Thus, before starting the writing process, students need to plan strategies or writing materials to produce good writing. SRL strategies are needed for the students to plan any preparations before the academic writing process. The researcher is therefore interested in examining students' attitudes towards the SRL approach to academic writing. In addition, the research poses three research questions. The researcher would like to examine which aspects of the SRL strategies that have been frequently employed by students in academic writing can be explored and identified with respect to gender differences in how these are implemented in academic writing.

This research was done at an Islamic private University in Yogyakarta, Indonesia during the odd semesters of the 2022/2023 academic year. A total of 112 ELED students from batch 2019 participated in this research. To collect data from the participants, a questionnaire based on Abadikhah, Aliyan and Talebi (2018) was used by the researcher. All questionnaire items, which were to be used as instruments in this research, have been validated and very reliable on the basis of validation and reliability tests. In addition, all the questions were translated into Indonesian so that they could be answered easily by the participants. The questionnaire was distributed on the Internet to those taking part. An analysis tool was used to analyze these data after they had been collected. For the purpose of answering research question number 1, descriptive statistics were used in this study. Meanwhile, research question number two was analyzed using inferential statistics.

However, in order to verify that the data are normal and homogeneous, assumption tests for normality and homogeneity have been carried out prior to the analysis of the data using inferential statistics. In order to analyze the significant differences between male and female students' attitudes, the researcher then used statistical analysis which was an independent sample test.

The findings show that social environment is the most frequently used dimension of SRL strategies in academic writing by ELED students. It is proven by the highest mean score of 3.76. This result implies that most students prefer to seek helps from others (i.e. peers or teachers) and use online or offline resources (i.e. books, Google, and online dictionaries) to accomplish academic writing tasks. Meanwhile, the time dimension becomes the lowest regulated dimension by the students. It is shown by the lowest mean score of 3.09. This result occurs that the students experienced challenges in time management during an academic writing exercise.

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