



Cognitive Engagement and Writing Skill: A Correlational Study At 12th Grade Students in Vocational High School Jakarta

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Abstrak

Tujuan dari penelitian ini adalah untuk mengetahui apakah ada hubungan antara keterlibatan kognitif siswa dengan kemampuan menulis. Penelitian ini merupakan penelitian kuantitatif dengan metode survei dan desain penelitian korelasional. Sebanyak 60 siswa SMK Swasta di Jakarta Timur dipilih secara acak sebagai sampel. Data keterlibatan kognitif siswa dikumpulkan dengan menggunakan angket yang diadopsi dari *The Student Engagement Schools Questionnaire* (SESQ) dan data kemampuan menulis siswa dikumpulkan dengan menggunakan tes menulis. Hasil penelitian menunjukkan bahwa terdapat hubungan positif yang signifikan antara keterlibatan kognitif siswa dengan kemampuan menulis mereka. Hal ini dapat dibuktikan dari hasil $r_{xy}=0,446$ nilai $\text{Sig.}=0,000<0,05$, $t_{\text{hitung}}=3,800$ lebih tinggi dari $t_{\text{tabel}}=2,002$. Koefisien determinasi diperoleh $(0,446)^2 \times 100\% = 19,89\%$ sehingga keterlibatan kognitif siswa memberikan kontribusi 19,89% terhadap kemampuan menulis mereka.

Kata Kunci: *Menulis, Keterlibatan Kognitif, Penelitian Korelasi*

Abstract

The objective of this research is to find out if there is any correlation between students' cognitive engagement and writing skill. This is a quantitative research using survey method and the design is correlational research. 60 students of Private Vocational High School in East Jakarta were randomly selected as samples. The data of the students' cognitive engagement were collected by using the questionnaire adopted from The Student Engagement Schools Questionnaire (SESQ) and the data of students' writing skill were collected by using the writing test. The result shows that there is a positive significant correlation between students' cognitive engagement and their writing skill. It can be proven from the result of $r_{xy} = 0.446$, the value of $\text{Sig.} = 0.000 < 0.05$, $t_{\text{count}} = 3.800$ is higher than $t_{\text{table}} = 2.002$. Coefficient determination is obtained $(0.446)^2 \times 100\% = 19.89\%$ so that students' cognitive engagement gives contribution 19.89% towards their writing skill.

Keywords: *Writing, Cognitive Engagement, Correlational Research*

INTRODUCTION

One definition of language is a system of communication which consists of a set of sounds and written symbols that include vocal and written forms, gestures, and body language. It permits people to communicate or interact in particular country or region for talking or writing. There are four basic skills in to

describe language: listening, speaking, reading, and writing. Each of these skills should be addressed during teaching and learning process. The teachers should utilize activities that integrate all four skills since each supports the other. The integrated skills can develop students' communicative competence because language elements such as grammar and vocabularies are learned in the context of a conversation or a real-life situation. One of four those four skills is writing. It is purposely taught in all schools because writing is an important life skill to learn. The advantages of learning writings are to improve communication skills, sharpen creativity and imagination, widen the knowledge, increase the level of confidence and so on. By improving writing skills, other linguistics elements such as grammar, vocabulary, spelling, and punctuation which are major parts of communication, can also be improved. In fact, there are still many students who have studied for more than six years still unable to use appropriate sentences clearly and correctly in the target language through the four skills, including writing skill.

According to Troia (2014) writing is the a way to afford students extended opportunities to think about, manipulate, and transform ideas and to reflect on their existing knowledge, beliefs, and confusions. Because writing is permanent and promotes more concrete and precise thinking processes, it offers a unique mechanism for extending learning beyond presentations, inquiry activities, and discussion. Defazio et al (2010) stated that writing involves learning comprehension, application and synthesis of new knowledge and encompasses creative inspiration, problem-solving, reflection and revision that results in a completed manuscript. Writing is one of productive skills which is the most crucial skills by foreign language students and it is very important to be mastered nowadays due to its role in communication. It has been known that work meetings and presentations, writing emails business transactions, records, legal documents, political and military agreements are written by those who are expert in their field with knowledge of writing skill.

Writing skill is considered as a complex process and it is not an easy skill to be mastered, especially for a non-native speakers. They need to do something that an average native speaker usually considers a difficult job to do. They must give much effort to write such as remembering a large number of rules and structures which are different from their own language. Furthermore, generating, organizing ideas and translating them into a readable text is not an easy job. If their language proficiency is weak, it will be more difficult for them to write or produce composition. The use of language aspects such as punctuation, spelling, grammatical, vocabulary are the basic points that makes writing difficult. There are some problems that make writing difficult. According to Byrne (1997, as cited in Alfuruqy, Setyawan & Nur Rohman, 2022) writing problems are divided into three categories: linguistic difficulty, psychological difficulty and cognitive difficulty. Linguistics factors like grammar, vocabulary, language use and choice of sentence in writing must have fully monitoring. The absence of direct interaction and feedback from the reader when they are writing cause physiological difficulty such as difficulty in developing written material or content of composition. In cognitive problem, writing is learned to a process of instruction.

The students have to master the written form of the language and to learn certain structures. They also need to learn how to organize the ideas in such a way to be understood by the readers. Cognitive difficulty is also challenging for both teachers and students.

Engagement is defined as students' feelings, thoughts and behaviors concerning a more or less specified object, such as school, learning, reading or writing. According to Moreira, Cunha, & Inman (2020) student engagement emphasizes as a multidimensional construct that is categorized into three dimensions: affective engagement, cognitive engagement and behavioral engagement. Besides, De Milliano (2013) stated that affective engagement refers to motivational factors, including students' feelings and emotional reactions to a task or school in general. Cognitive engagement refers to students' willingness to exert mental effort needed to perform challenging academic tasks as well as the use of self-regulatory strategies to guide one's cognitive efforts while the active participation of students in academic activities in the classroom is defined as behavioral engagement. Engagement reflects the process and product experienced on a continuum and results from the synergistic interaction between motivation and active learning (Barkley, 2020). In summary, student engagement is a broad multidimensional construct which includes the quality and quantity of students' behavioral, emotional and cognitive reactions to the learning process by performing effort, active involvement and devoting to educationally purposeful activities in academic aspect as well as non-academic aspects to achieve successful learning outcomes. This study focuses on cognitive engagement in the field of writing and the relationship between both variables. It is considered that writing requires good cognitive process since it is a complex activity which is difficult to carry out.

Cognitive engagement refers to the use of cognitive strategies during writing for executing and coordinating writing processes as well as students' willingness to exert mental effort to foster written communication (De Milliano, 2013). Skinner and Pitzer in the Christenson's book (2012) propose the cognitive dimension of engagement includes purposeful, approach, goal strivings, strategy search, willing participation, follow-through and care, preference for challenge, mastery and thoroughness. Cognitively engaged students would be invested in their learning, would seek to go beyond the requirements, and would relish challenge (Trowler, 2010). In addition, Brown (2010) also stated that different levels of complication may be identified in students' cognitive performances, namely, low level and high level. It can be concluded that cognitive engagement refers to cognitive control, the ability to coordinate thoughts and actions in relations with internal goals and concerns with self-regulation, relevance of schoolwork to future endeavors, value of learning, and personal goals and autonomy. A great deal of research has been done regarding cognitive self-regulation and its relation with texts produced by writers of diverging proficiency Graham (2006, as cited in De Milliano, 2013). The findings suggest that better writers are more strategic than poorer writers. One of research findings conducted by De Milliano (2013), it examined the relation between cognitive engagement and literacy proficiency of low-achievers. The results showed that

both reported effort and reported self-regulation were not significantly related with literacy proficiency (both reading and writing). However, it just examined the specific group of students, low achievers only. Therefore, the researcher is interested in conducting quite similar research by focusing to all students in general. Moreover, there are still many Indonesian students who have poor writing skill. This condition makes the writer curious to find the answer about the relationship between the students' cognitive engagement and their writing skill.

METHODOLOGY

This is a quantitative research using survey method and the design is correlational research. This research was conducted to know the correlation between two variables. The form of X as independent variable can be viewed as students' cognitive engagement while Y as dependent variable and represents of writing skill. In this research, data were obtained by using two kinds of instruments: writing test and questionnaire. The research was conducted at Private Vocational High School in East Jakarta: SMK Bina Prestasi. 60 samples of grade XII students were selected randomly.

This research studied independent variable: students' cognitive engagement and the data was collected by questionnaire adopted from The Student Engagement Schools Questionnaire (SESQ). The data of students' writing skill as dependant variable was collected from writing test. Based on The 2013 Curriculum, Vocational High School students (grade XII) are expected to compile oral and written simple scientific factual report text, based on social functions, text structure, and linguistic elements correctly (BSNP, 2013). Therefore, the simple scientific factual report text about things, people, animals or places was given as writing test. The score of writing test was obtained by assessing five aspects: content, organization, grammar, vocabulary, and mechanic (Brown, 2010).

Pearson Product Moment formula was used to calculate validity of the instrument of The Student Engagement Schools (SESQ) and Alpha Cronbach formula was used to calculate its reliability (Arikunto, 2014). The invalid items of questionnaire after try out were discarded, so the items asked were only the valid ones. There were 12 valid items questionnaire from 22 items and the questionnaire was reliable ($r_{obs} 0,760 > r_{table} 0.381$). Before hypothesis was tested, requirement or prerequisite test must be done first to get accountable and unbiased data. Normality test was done by Kolmogorov-Smirnov test. The data are normally distributed if Sig. value is more than significance level (typically 0.005). Mean-Test for Linearity was carried out by looking at level of linearity Sig. value. If it less than 0.05, the model is linear (Priyatno, 2013).

Data analysis was carried out to determine the correlation between variable X (students' cognitive engagement) and variable Y (students' writing skill) using Pearson correlation analysis by SPSS 20.0 program. This analysis is used to determine the relationship between one variable and another variable where the type of data variables interval or ratio and both of them must be normally distributed. Based on Sugiyono (2012), the interpretation of correlation coefficient

result can be seen as follows 0.00-0.199= very low, 0.20-0.399= low, 0.40-0.599= moderate, 0.60-0.799 = strong, and 0.80-1.000 = very strong.

RESULTS AND DISCUSSION

Result

a. Data Description

This research studied two variables: students' cognitive engagement (X) as independent variable and students' writing skill (Y) as dependent variable. Data description analysis was conducted to determine, mean, median, mode, standard deviation, minimum and maximum score.

Table 1. Research Data Description

No.	Statistics	Cognitive Engagement	Students' Writing Skill
1.	Mean	48.38	81.98
2.	Median	48.00	83.00
3.	Mode	48	86
4.	Std. Deviation	3.893	3.972
5.	Minimum	40	72
6.	Maximum	55	87

Table 1 shows that the score of cognitive engagement and students' writing skill are classified as good, while the scores that are above the average are more than those who are below the average. Overall, the data of cognitive engagement and students' writing skill are presented in the histogram and polygon as follows.

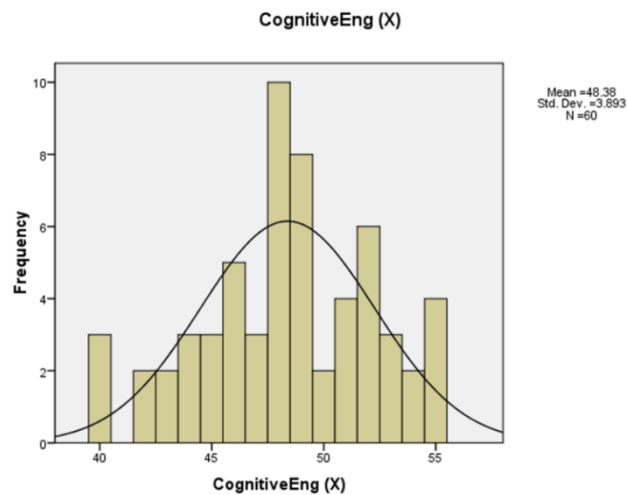


Figure 1. Histogram Chart and Frequency Polygon Variable of Students' Cognitive Engagement

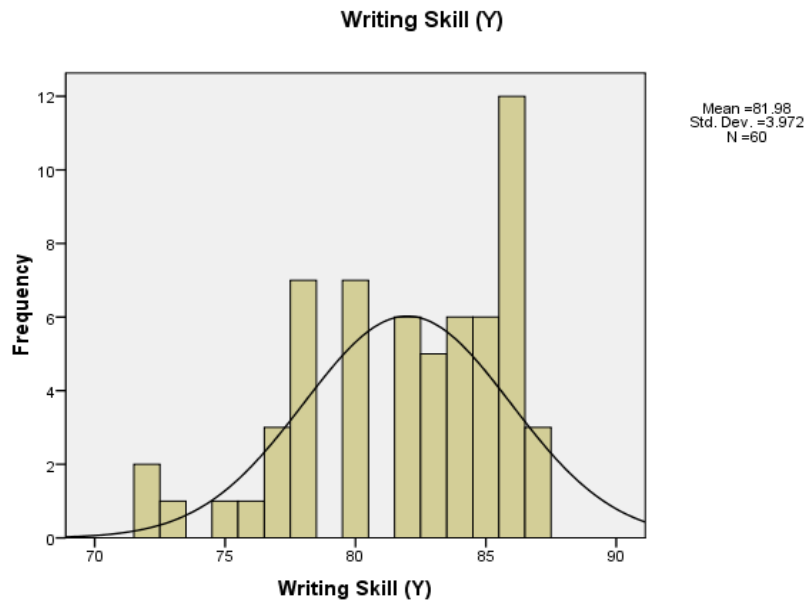


Figure 2. Histogram Chart and Frequency Polygon Variable of Writing Skill

b. Requirement Test of Correlation Analysis

Before hypothesis was tested, requirement or prerequisite test must be done first to get accountable and unbiased data. In this research, Kolmogorov-Smirnov test was used for normality test and Mean-Test was carried out for linearity test. The requirement test results of this research are described as follows.

1) Normality Test

Good result of regression analysis should come from normal data distribution. Kolmogorov-Smirnov test was used to check data normality in this research. The test was conducted on each variable.

Table 2. Normality Data Test

	Cognitive Engagement	Students' Writing Skill
Kolmogorov-Smirnov Z	.858	1.117
Asymp. Sig. (2-tailed)	.453	.165

The data is normally distributed if the value of Asymp. Sig > 0.05. Table 2 shows the result of One- Sample Kolmogorov-Smirnov test that indicates all research variables: cognitive engagement and students' writing skill are normally distributed with the value of Asymp. Sig (2 tailed) respectively 0.453 and 0.165.

2) Linearity Test

From the table below, it can be seen that variable cognitive engagement (X) towards students' writing skill (Y) is linear. This is proved by the level of linearity Sig. value = 0.000 < 0.05.

Table 3. Linearity Test

	Sum of Squares	df	Mean Square	f	sig
Writing Skill (Y) (combined)	345.075	14	24.648	1.893	.054
Cognitive Engagement (X) Linearity	185.601	1	185.601	14.255	.000

c. Hypothesis Test

In this study, Pearson correlation analysis was used to determine the correlation between variable X and Y. It was also used to know how strong the correlation and to find out whether there is a significant relationship or not. The value of r is around 0 to 1 or 0 to -1. The closer to 1 or -1 means the stronger correlation. The results is summarized in the tables below.

Table 4. Correlations

		Cognitive Eng (X)	Writing Skill (Y)
Cognitive Eng (X)	Pearson Correlation	1	.446
	Sig. (2-tailed)		.000
	N	60	60
Writing Skill (Y)	Pearson Correlation	.446	1
	Sig. (2-tailed)	.000	
	N	60	60

** Correlation is significant at the 0.01 level (2-tailed).

Based on table 4, variable X has a positive correlation towards Y (coefficient correlation 0.446). The correlation is classified as moderate. The significance value (Sig 2 tailed) of 0.000 means that X has a significant correlation with Y. This is because the value of Sig < 0.05. Besides, T test was also carried out to know the effect variable X towards variable Y. The result is shown in the table below.

Table 5. Coefficients^a

Variable	B	Std.Error	Beta	t	sig
(Constant)	59.940	5.819		10.301	.000
Cognitive Engagement (X)	.456	.120	.446	3.800	.000

a. Dependent variable: writing skill (Y)

There are two ways to take decision. Firstly it is based on the value of t, there is an effect if $t_{count} > t_{table}$. Secondly it is based on the significance value, there is an effect if the significance value is ≤ 0.05 . The t table value can be seen in the statistical t table at $df = n - 2$ or $60 - 2 = 58$. By using a significance of 0.05, and a two-sided test, it was obtained $t_{table} = 2.002$.

Based on table 5, cognitive engagement has a significant effect towards students' writing skill. This is because the value of $t_{count} > t_{table}$ ($3.800 > 2.002$) or $significance < 0.05$ ($0.000 < 0.05$). The effect is positive because the t-count is

positive. It means that if cognitive engagement increases, so does writing skill and vice versa. Coefficient of Determination was also determined based on the computation below.

$$\begin{aligned} \text{CD} &= r^2 \times 100\% \\ &= (0.446)^2 \times 100\% \\ &= 0.1989 \times 100\% \\ &= 19.89\% \end{aligned}$$

It can be concluded that cognitive engagement gives contribution 19.89% towards students' writing skill.

Discussion

Based on result and findings, it shows that there is a positive and significant correlation between cognitive engagement and students' writing skill. The students who have good cognitive engagement tend to perform good writing skill because they put more effort and use more self-regulative activities to get more progression in writing proficiency over time. Cognitive engagement is used in writing activity by coordinating cognitive strategies, willingness, motivation and mental strategies. In fact, the students are required to use their cognitive control and strategies in their writing such as using linguistics knowledge, organizing ideas, and developing content to deliver messages for the readers. This is hard task because using cognitive strategies in writing requires a lot of mental effort, especially for low-achievers due to their poor knowledge of conceptual and linguistics aspects. However, the students who engage cognitively will try their best and motivate themselves to complete each task given by teacher as well as possible. This is in line with theory that cognitive engagement has been linked directly to achievement (Greene, 2015). Fostering cognitive engagement is very challenging but the students who cognitively engaged would enjoy the challenges and improve their ability in learning and perform active participation in the class. It is based on theory mentioned that cognitively engaged students would be invested in their learning, would seek to go beyond the requirements, and would relish challenge (Trowler, 2010). The results of this research also show the effect of cognitive engagement towards writing skill is 20%, which means that cognitive engagement must be considered as one of important factors to improve students' writing ability. Therefore, it is obvious that cognitive engagement is necessarily encouraged through effective approaches and teaching methods that implemented by teachers.

There are some ways to foster students' cognitive engagement in learning process such as motivating and stimulating intellectual environment, encourage social connection and developing self-regulation (Krause in Towler 2010). Intrinsic motivation is difficult to be improved since it comes from students themselves. In fact, their motivation to study is generally still low so the teachers are required to motivate continuously during learning process. By giving students motivation, their confidence also will be boosted because the teachers deliver many postives values and thoughts for their successful learning outcome. Another way to foster students' cognitive

engagement is by increasing students' self-regulation abilities. Generally, in teacher learning centered students' self regulation is still low because of the lack of learning autonomy so that the impact on self-regulation abilities is also low. Thus, the student learning centered must be conducted by actively involving them in every learning activities. In summary, cognitive engagement has positive correlation with students' language learning proficiency including writing skill. It contributes positive influence to students learning achievement.

CONCLUSION

Based on research findings, it shows there is a significant positive correlation between cognitive engagement and students' writing skill at the twelfth grade students of SMK Bina Prestasi Jakarta. Thus, if students' cognitive engagement is increased, the students' writing skill will also increase. Cognitive engagement has also a significant effect towards writing skill. Improving students' engagement is considered important for their successful learning achievement not only for their language ability but also for other subjects. There are several ways to foster cognitive engagement, such as improving students' motivation, social connection, and self-regulation. The role of teacher is significantly needed to improve students' engagement by involving them actively in every learning activity.

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